Improving Government Schools
What has been tried and what works

Edited by Mandira Kumar & Padma M. Sarangpani

Government schools serve the majority of children in our country. These schools have witnessed a decline in their services, and increasingly they are accessed by the poor and the marginalised. Across India, a handful of committed individuals have led efforts to improve government schools, in the belief that they could demonstrate or induce an enduring change in the system.

This book profiles twenty three such efforts from across India. These are stories of inspiration and insight, written in an accessible style, of interest to practitioners and others engaged with ideas of innovation, change and school reform. There are efforts to improve the teaching of curricular areas such as language, maths and science; as well as attempts to introduce new ones such as health, peace and environment education. Some efforts have focused on the role of textbooks, radio and computers in the classroom, others on mobilising communities and energising teachers. The narratives are factual and reflective, and construct a varied picture of how innovations are nurtured, implemented and spread.

The introduction places these narratives in the larger context. It outlines the scope for outside agencies to work and collaborate with the state to reform the government schooling system, and reflects on when things have worked and when they have not. An additional resource in the book is an all-India listing of non-governmental organisations engaged with the issue of 'improving government schools'.

FOREWORD

Words have a life cycle, and innovation seems to have run out its youth. When Kishore Bharati - the mother of Eklavya, whose work is covered in this book - was in its infancy in the early 1970s, innovation conveyed the desire to improve the system by engaging with it. At least, that is the meaning Kishore Bharati gave to the word. It was the first attempt ever - not just since 1947, but since 1854 when the structure of the system we recognise to this day was formally born - made by a voluntary agency

(which is how what we now call an **NGO** was known then) - to engage with the system, with the conviction that such an engagement would have a transformative effect on the system.

I am sorry this last sentence looks so messy, with all the parenthetical clauses, rather unbecoming of a foreword, but I wanted to show how much the meanings of words have changed while the system has not, the long, untidy sentence should serve lo symbolise the cost we pay for staying dependent on oral memory in the age of literacy. This book is a laudable attempt to bring into written memory the narratives of bold and beautiful attempts made by remarkable individuals and their colleagues to intrude into the system of school education. The terms 'intrude' is more accurate than the more familiar 'intervene', because the latter conveys a formal approval, if not a formalised welcome, to those who wish to interrupt the flow of routine.

Thirty five years after Kishore Bharati had started functioning in Hoshangabad, the system of education continues to be resistant lo outsiders who want to improve it by working within it. The Kishore Bharati-Eklavya project known as the Hoshangabad Science Teaching Programme has been closed down, and there are rather few signs of the system's will (though a willingness is sometimes won with the help of grit and contacts) to encourage more such projects, or to learn from them. And yet we can hardly avoid noticing that the times are ripe for systemic reforms to receive everybody's attention, and for the birth of new partnerships - a term we owe to the market, an institution which arouses hope for some, anger in others, but is a major reference point in our times for all.

This book couldn't have come at a more opportune time. It will remind all those who are fed up with the rigidities and the underachieving character of the system of school education that it is possible to try changing it without formally belonging to it, that in fact it is necessary for us to want to improve it, because we pay an extraordinarily high price for maintaining an unreformed system.

The accounts included in this collection are all brief and highly readable, which means that they will not be consigned to the body of literature we call research, but they will be read for personal inspiration. For me, these accounts evoked memories of individuals who look extraordinary in retrospect, some of whom are still battling. Literate memory places the past in perspective and thereby creates a place in history for names who might otherwise be forgotten.

Dr Kalbag was one such person whose story is told here. All the stories we read here are like still photography, of moments when cyclonic weather hit a region or an institution steeped in routine. Cyclonic weather is normally pleasant, but it does not last. Even innovations stagnate when they drag on. That is why we need to recall them, to deepen our understanding, and to strengthen our resolve. We also need them to avoid superficiality that necessarily afflicts uninformed beginnings. By reading about projects successfully undertaken in the past, one feels obliged to put substance of memory into a new dream, and audible echoes into a proposal for funding. I also hope that those who serve the state will read this book to stir their imagination, to dunk of all that is possible and is not happening just because procedures do not allow for it.

Krishna Kumar

The project

Sutradhar is a Bangalore-based educational resource centre. This book is the outcome of a documentation project initiated and managed by us. We were involved in a small way with government schools, and keen to learn from the experience of other groups, in the belief that it would inform and enrich our practice.

Since 1996, we have been coordinating a features service that aims at promoting educational discourse through mainstream newspapers. The essays in this book have appeared in an abridged form in the *Deccan Herald,* through the 'Sutradhar Features Service'.

I am particularly indebted to Dr Padma Sarangapani, who has been the co-editor of the book, and guided the project through its various phases. I would like to thank ICICI for their support in helping us document the interventions. I am grateful to Sir Ratan Tata Trust and Wipro Applying Thought in Schools, as their support helped us take the project ahead into a book. I would also like to acknowledge Sir Dorabji Tata Trust for supporting Sutradhar as this allowed us to house the project from 2000-2005.

I would also like to thank Books *for* Change, particularly Shoba and Shailaja for working with us in a collaborative spirit to bring out the book.

Mandira Kumar

Sutradhar

The Editors

Firstly, we would like to thank the contributors - many of whom stretched themselves to write for us despite their work commitments, and responded to our queries with good grace. They captured the spirit of the intervention within the word constraints we had imposed, and negotiated the logistical challenges of meeting with busy individuals and government officials.

We are equally indebted to the many groups and individuals who spared the time to reflect with honesty on their own work. They supported our effort by responding to our clarifications, and sending us project updates, documents and photographs.

We are grateful to Dr Krishna Kumar for writing the foreword to this book. His enduring faith in the formal school system and his professional and personal encouragement have been a source of immense strength.

Lastly, we would like to thank the Sutradhar team - including Preeti Purohit and Indra Moses - for their support during the different phases of this project. They helped with the initial survey in identifying projects for inclusion, corresponding extensively with NGOs, sourcing secondary literature, supporting contributors, and liaison with the press. They assisted with the additional work required to take the essays into the book - sourcing visuals collating annexure, proof-reading and design, and compiling the all - India resource directory.

The Editors

Improving government schools

Padma M Sarangapani and Mandira Kumar

The word 'school' evokes images of children in uniform, heavy school bags, and dust rising from playgrounds where children jostle each other and run around until the bell rings and the discipline of the school takes over. The teacher, textbook in hand, loudly addressing children... routine, repetition, memorisation, examinations, fear, and boredom-waiting for the bell to ring. There is no doubt that schools need to change and provide better quality of educational experiences to children. Even more so in the case of government schools, which cater to more than 80 per cent of the children in our country.

The concern to improve the education children receive through schools and efforts to work with the government and within the government system

to make this happen have a fairly long history in this country, beginning with Gandhi's *Nai Talim* or basic education. This was conceptualised and proposed as the basis for school curricula in the 1940s, and was an attempt made to reform government schooling by the state itself. The introduction of a curriculum which drew on ideas such as productive work and instruction in the mother tongue came from concerns to make compulsory education a meaningful and relevant experience for the child, and to link education and personal development with social concerns.

The system, however, recapitulated to an earlier formulated 'mainstream', the foundations for which were laid by our colonial masters. This was a system with a focus on academic learning based on textbooks and examinations. The imprint of the structures and processes instituted in colonial times remains strong even as it is reified into greater rigidities and paradoxes in the face of the vast disparities and hierarchies that are a part of the Indian socio-cultural fabric.

Concerns for the need for reform have continued to be expressed by individuals and agencies within the government through various commission reports, beginning with the Mudaliar Report of 1958. Outside of the government, Kishore Bharati initiated the Hoshangabad Science Teaching Programme (HSTP-Eklavya) in Madhya Pradesh in 1972. Individuals and agencies since then have tried to address the question of how to make school education an effective vehicle for learning, self-development and social transformation. Many have established schools and learning centres beyond the fold of the formal system, carving a niche outside of state control and conformity; by remaining private, or receiving state funding for 'non-formal centres'. A few have chosen to work with improving government schools, in the belief that the state is the fundamental provider of education, and the only system with the widest reach and potential of including everyone. Increasingly, in recent times, the state has become the only provider of education for socially marginalised groups. This book is a collection of writings on initiatives in state-run schools.

There is a wide variety in the initiatives presented in this collection: some interventions are small, focussing on just one school or a few schools, while others are quite large, extending sometimes to a whole district or state. Some are in rural areas while others are in urban spaces. Some have continued for a few years only while others have managed much longer periods of existence, even getting legitimately assimilated or appropriated by the larger 'mainstream'. Yet each is quite unique in its focus and approach to the problem of improving schooling.

New groups and individuals are getting involved with improving government schools. Several large scale projects have been launched by state governments to focus on and impact school quality issues, beginning with the Andhra Pradesh Primary Education Project (APFEP) and the Bihar Education Project (BEP) from the late ’80s, and more recently the District Primary Education Project (DPEP) from the mid-80s onwards. In this scenario, ‘we felt it would be worthwhile to compile accounts of some of the non-governmental interventions, which constitute a unique inheritance. There is surprisingly little available in writing. These accounts could serve as a source of inspiration and guidance to be adapted, replicated or modified in new situations. We felt that the lack of literature on these interventions has limited their potential to influence and impact new work.

Our documentation focuses on specific projects and interventions to improve government schools. Without doubt, the individuals and the organisations involved are a crucial component of the manner in which an intervention is designed, implemented, refined and sustained over many years, often against odds. These stories are worth being told. But our documentation has tried to go beyond the individuals and organisations to understand the design of the interventions themselves, and the processes both within the organisation and on the field, in interaction with the government bureaucracy and the schools through which the interventions unfold. Our attempt has been to glean from the efforts of not only well known interventions but also smaller ones; mostly those that have ‘worked’ but also those that have not; insights into processes, funding, strategic choices, issues of sustainability and spread, and ways of assessing impact.

In this introduction to the 23 accounts presented in the collection, we share some insights we gained in the process of undertaking the documentation - about what has been tried and why, understanding ‘success’ and ‘impact’ related to working with government and within government schools, and the future of such work.

The process of documentation

We began with an exercise of mapping efforts made in different parts of the country. Based on our own knowledge, we listed out names of about 30 organisations and efforts, and located them geographically, with the focus of their work. Our list went back to the early 1970s with HSTP being perhaps the first effort of this kind. We shared this list with the wider network of our acquaintances working in education in different parts of the country. We

asked them to assess the names already on the list, to ensure that these were organisations whose work was mature enough to be considered for documentation and as a case study that could generate insights. We also asked them to add to this list. This exercise in itself generated some significant insights.

The documentation and writing was undertaken by independent researchers located in different parts of the country. We did not plan *to* do an in-depth study of each intervention. Rather, we tried to capture the drama of the process of the intervention through a series of in-depth, reflective interviews with key persons involved in designing and implementing the programmes, as well as discussions with teachers involved and visits to classrooms. We also referred to secondary literature about the organisation and the intervention itself. We prepared a format for a 'fact sheet' on each intervention. In addition, we prepared a detailed questionnaire, which could be used to direct the interviews. Our questions were regarding the initial conception and history of the programme, the people involved, the main features and qualities of the programme, the kind of work that was undertaken for implementation, the efforts involved in making the intervention take root and succeed. We also asked for descriptions of 'everyday life' in the schools subsequent to the intervention, major changes observed and reasons for the same, processes of working with the government, and the impact. We invited our respondents to reflect on how they would change things in retrospect. In almost all cases, we found that this method was quite fruitful. Almost always we found our respondents very willing to reflect upon their experiences, and share both successes and failures, along with analyses of both. Rarely were things said which were 'off the record'.

Based on these interviews, visits to the field, and the secondary literature, each of our researchers composed a short narrative of about 2000 words, in which (hey tried to convey what they identified as a significant aspect of the intervention. These accounts were further reviewed by us, and also shared with the organisation or individuals involved. These essays are not comprehensive accounts, and only provide glimpses of the efforts of each project. About 35 intervention efforts were identified for documentation, out of which 23 are presented here. Notable missing ones include the grandmother of government school interventions, the Hoshangabad Science Teaching Programme, Madhya Pradesh; Bodh. Rajasthan; and SECMOL, Ladakh. During the period of our documentation from 2001 to 2004, there have been changes on the field. Some interventions, notably Eklavya's

Science, Social Science and Prashika programmes are no longer operational. Dr Kalbag, who pioneered Vigyan Ashram in Maharashtra, is no longer with us. Some of the programmes have also changed, and their emphases altered.

Nevertheless, the insights and strategies of working within systems still remain meaningful. Examining all the interventions together, a few patterns are discernable which are presented here.

Mapping interventions

The *first feature* that we noticed was that the number of organisations and efforts that were known for government school involvement was not very large. It seemed that apart from a few prominent examples, such as Eklavya, people working in education were not aware of efforts to work with government schools directly. Even the limited efforts that we knew of seemed to have escaped wider notice. In spite of the widespread concern over the quality of education in government schools, and much talked about possibilities such as 'school adoption' and 'school partnership', there were not too many known small and localised attempts of intervention for improving quality. Some of the interventions on our list had run their course, and a few had not been documented at all. Our list therefore did not get significantly longer. This was both surprising and disconcerting, given the magnitude of the problem and our expectation that we would stumble upon many more, lesser known efforts.

"The *second feature* we noticed was the response to our focus on work relating to government schools. Some of our respondents wrote back with surprise asking how come we had left out such significant 'success stories' as Shiksha Karmi and Lokjumbish's *muktangans,* and suggested we should also look at the Education Guarantee Scheme schools. Our decision not to do so was deliberate. We were careful to retain a focus on the formal schooling structure and not be distracted by government innovations outside this, in the 'non-formal' school sector. The latter has a flexibility and permits innovation. But this apparent freedom seems to derive from the overall unregulated condition of schooling for truly underprivileged children, where teachers and school authorities seem to be less concerned with what constitutes good education. Non-formal education suggests the possibility of a 'dilution of standards'. The lack of regulation of these centres, and the parallel unwillingness to bring in any changes in the 'mainstream', are themselves indicative of the complexity of working with the government on school improvement.

Some of our respondents also suggested names of organisations running schools or non-formal education centres for underprivileged children in rural areas and in urban slums. Some of these, such as Vikramshila in West Bengal, or the schools run by Agragamee in Orissa, were alternate schools with a difference. They were organised differently and used curricula that they had created specifically for their locale. They catered to the same group that would have otherwise attended government schools. Often the work in these institutions had generated a wealth of insights into how schooling can be made more relevant, interesting, and enriching to children and local communities. Some organisations such as Digantar and Bodh, with schools in Jaipur, have subsequently also been involved with improving government schools, through textbook preparation and teacher education programmes.

It seemed that many of our respondents interpreted our exercise as mapping innovative efforts to address the schooling needs of the poor, the underprivileged, and of rural areas. The image of the government school has increasingly coincided with socio-economic deprivation. But this feature of government schools is not as pervasive at it seems, and it is also quite recent. Even one generation ago, in towns and cities, the clientele of government schools was far more heterogeneous than it is today. Children from a wide cross-section of socio-economic backgrounds came to these schools. This is still true of many rural areas, and particularly so of higher secondary schools.

We have tried not to reduce the problem of improving government schools to one of providing quality education to children of the poor and the underprivileged. The problems associated with quality in education are wider in their scope. As will become apparent in the cases that we present in the book, many of the efforts are not directed specifically at the problem of schooling for the underprivileged but have tried to engage more widely with the quality of 'mainstream' curriculum and pedagogy, as conceptualised and planned for by the system. For most of the cases profiled here, working in the government schooling system is significant, because it is and will continue to remain the basic provider of schooling. The desire to direct one's energies towards those schools that do not discriminate on the basis of economic class and parents' ability to pay, and that serve the relatively less privileged groups of society, has been an important ethical choice made by the groups and individuals who lead the interventions documented here. They have addressed varied questions such as how to make education relevant to children and the community, design alternative textbooks or materials, retrain teachers, or provide additional support to children of

specific groups such as first generation learners, Dalits or scheduled tribes. These are located within a basic endorsement of the importance of a government school system, and therefore also of implementing systematically, understanding how sustainable systemic changes can take place, and working to make this happen. Improvements within this system are important as they have the most wide reaching impact. Curiously, this could also be the reason why they are not very well known, as they do not impact the lives of elites in society.

The *third feature* that we noticed as we mapped interventions was the concentration of efforts in parts *of* the country and an overall lack of geographic spread. Sonic of the significant areas of concentration were, firstly, the Mumbai municipal corporation schools, which have perhaps the longest history of being open to outside agencies. Interventions such as Khoj and Abacus, who work on socially sensitive issues of communal harmony, have been allowed to work here. Other geographic areas where we found a significant concentration of efforts were the larger Maharashtra state, Karnataka. Delhi, and Madhya Pradesh, which was dominated by the efforts of Eklavya. This distribution did not coincide completely with the presence of established non-governmental organisations, located in different slates, many of whom have had a long; tradition of social development work and interest in schooling. Areas where we expected to, but did not find significant instances of direct work in government schools were West Bengal. Orissa, Kerala and Tamil Nadu. The cases of Kerala and Tamil Nadu were particularly interesting, given that both the Kerala Shastra Sahitya Parishad (KSSP) and the Tamil Nadu Science Forum (TNSF) have a large number of government school teachers enrolled as members. KSSP is also well known for its people's science education programmes, and its association with the library movement in Kerala. Both were very *active* during the literacy movement. It seemed that even if there was an interest and willingness to engage with government .schools, not all school systems were readily open to allowing outside agencies to have an involvement. Some 'grassroot' organisations such as Agragamee in Orissa, and Urmul in Rajasthan, also seem to have felt that night schools, non-formal education centres for tribals or girls, and bridge courses were more relevant.

In general, state education bureaucracies have been guarded in allowing outsiders to work directly in their schools or on issues impacting their schools such as textbooks or in-service teacher education. Many of the cases we have profiled include insights on getting a foothold in the system and managing 'gate-keepers'. A few took advantage of people in positions of

high authority to open doors. The spurt of small initiatives from the 1990s onwards is in response to the opportunities opened up by DPKP in some of the stales. Being smaller, they have also had to make many more compromises in the design of the intervention, in order to fit into the spaces made available. More recent initiatives linked to 'corporate social responsibility' take full advantage of the backing of high-powered, media savvy corporate to gain access to decision-making authorities of the government. Many of the stories of successful entry involve mobilising social capital; not always is the proposed intervention itself examined thoroughly, nor are measures of accountability set. Where the poor are involved and they have lacked access to such social capital, the doors have remained closed. This may be one of the reasons for the absence of spontaneous local movements by those whose children go to government schools. When doors that were once opened are closed, it erodes the system of mutual accountability between non-governmental agencies and the government, and their accountability to teachers, children and parents.

A *fourth feature* we noted was in the nature of the institutions involved in these interventions. Most often these were non-governmental organisations, but there were also a few cases of institutions of higher education and research, and universities getting involved. We also noted an increase in the recent past of efforts directed at government schools, many of which are associated with a new kind of organisation closely linked with the corporate sector. These work on a very large scale and also have a much stronger public face. We have not profiled these efforts extensively as many of them are relatively new, at most a few years old. They need to run their course for a few more years before we can explore them to understand the nature of such interventions and their impact.

What has been tried

There are about five distinctive patterns of intervention. The first is a focus on *specific subjects of the school curriculum,* and the intervention is an attempt to make the teaching of this .subject area more effective. Not surprisingly, the organisations involved themselves have expertise in the area. The intervention takes the shape of new curriculum materials, and the implementation involves teacher training as an important component. Significant among such interventions are Eklavya's science and social science programmes. Suvidya's mathematics programme and the Homi Bhabha Centre's efforts in science and mathematics. The Centre for Science Education and Communication, Delhi University, (not profiled) tried to

work with mathematics teachers in a few Delhi municipal schools, hut this could not be sustained. Each of these interventions has involved careful attention to detail and extensive trials in the field. The recent exercise of the State Council for Educational Research and Training (SCERT), Delhi, in developing a new set of textbooks, drew from many of these efforts. Many of the subject-specific approaches have focused on the middle school, a period of learning free from the constraints of the Class 10 board examination.

A second type, related to the subject focus, involved selecting and developing *specific unconventional areas of the curriculum.* These include areas such as health and environmental education. These interventions have also involved well-researched and rigorously tested curriculum materials for teachers and for classroom use additional teaching-learning experiences and materials, teacher training, and school-based support. In this type the programmes that were run by SeHAT and FRCH in health, BVIEER and Uttarakhand Seva Nidhi in environment education, Khoj and Abacus in teaching history for communal harmony, and Vigyan Ashram on the inclusion of rural technology in the school curriculum. These areas have been identified as essential to promote in children a better awareness of issues that relate to their immediate lives in the community. Some of these organisations have been successful in getting the concerned state governments to include these unconventional subjects in the formal school curriculum. We also learnt of efforts and an interest in including areas such as 'life skills' in the curriculum, but did not come across any sustained implementation efforts towards the same. Despite our efforts *to* identify interventions in arts education in government schools, we were unable to do so. This reflects the low value accorded to the arts in formal schooling, in contrast to their place in 'alternate schools'.

A third group of interventions could be regarded as *whole-school approaches.* This group includes Eklavya's Prashika programme which engaged with the whole primary school curriculum and the Concerned for Working Children (CWC), Karnataka, who provided both supplementary materials and teacher training support, and invited community participation. In the case of Bodh, and the Rishi Valley REC in Andhra Pradesh, again whole-school curriculum, teacher training and school-based teacher support are significant components. Seva-in-Action, Karnataka, also promotes a 'whole-school approach' to inclusive education. This category also includes the interventions of 'school adoption' and the development of school management and school leadership. The Centre for Education Management

and Development (CEMD), New Delhi, not profiled here) has trained government school principals and education officers in Delhi and Uttar Pradesh in leadership. The whole-school models have mostly been tried out in primary schools.

Related to interventions in primary school is the fourth area, with a locus on *language teaching.* With universalisation becoming a more concerted agenda *for* state governments and the enrolment of first generation learners in schools increasing, failure at early literacy acquisition is becoming a widespread problem, along with poor development of language skills. Pragat Shikshan Sanstha's efforts in Maharashtra have been to work on preparing a reading curriculum and (raining teachers. Pratham's programme in different stales of India focuses on reading instruction but relies on an assistant other than the teacher for this purpose. Alarippu (Delhi, not profiled) ran a library, and used theatre for creative expression. Centre for Learning Resources, Pune, has been working on the teaching of English through radio. This is a significant area of work, as language proficiency directly correlates with school success and learning in all other subject areas. Studies show us that children's language skills are far from adequate and this is one of the important reasons for school drop-out.

A fifth group of interventions follow the *carrot and stick approach to accountability* and demand for school quality, relying on community mobilisation. This can be seen in both the Jahangirpuri school project of Delhi University and Movement for Alternatives and Youth Awareness (MAYA), Karnataka.

Some interventions also include the participation of children, as in **CWC.** Extending its initial emphasis on enrolment to include attention to what goes on within schools. MV Foundation in Andhra Pradesh has initiated the 'learning guarantee' programme. More recently, the Azim Premji Foundation, Karnataka, has extended 'test-based' and incentive driven accountability in many states. These seem to be in response to the need to create appraisal mechanisms and ownership of government school institutions, to make the system answerable to the interests of parents and the community. These interventions focus on access, inclusion and achievement, and failure of the system is seen primarily in those terms. It remains to be seen if schools are able to pull themselves up by their own bootstraps to improve their performance on tests and other counts, by improving the quality of their instruction, and their concern for children's learning.

In some places, community mobilisation has included not only issues of accountability but also of contributing to the upkeep of the school - its

infrastructure, and supervision of civil works. We were not able to include such examples hi our documentation. Several states such as Karnataka and Maharashtra have provided for 'school adoption', allowing individuals or organisations to contribute towards the repair and maintenance of specific schools. Guidelines are provided on how and what could be done to channelise the interest of non-experts in the upkeep and improvement of government schools. We had heard of 'twinning', in which better-off private schools link with local government schools, but none of these efforts appeared to have been established sufficiently. In a different way, the Central Institute of Education (CIE) basic school, Delhi, was 'adopted' by the university, but with strong pedagogical support. We were keen on including more unconventional and subtle efforts in improving school quality such as school playground design; and school architecture pioneered in the APPEP, and later in Lok Jumbish, Rajasthan; but were not able to do so.

Direct work with teachers, with a focus on in-service or pre-service education and professional development, is an important way in which the system can be impacted. The interventions profiled here all depend on teachers. Most have evolved ways of supporting teachers through better designed materials for classroom. Organisations such as the Council for Advancement of People's Action and Rural Technology (CAPART), New Delhi) and the Centre for Environment Education (CEE, Ahmedabad) provide periodic in-service training to teachers, but the efficacy of a model which does not include follow-up in schools, and for which there are no impact studies, is not well established. Programmes have also introduced technologies such as learning ladders, radio and computers to directly reach children, and minimise dependence on the teacher, in some cases with the explicit intent of 'teacher proofing' the intervention. The Indian Space Research Organisation (ISRO) has promoted the broadcast of educational television into classrooms.

With the exception of the CIE-basic school adoption and the Homi Bhabha Centre for Science Education (HBCSE-Prism, Mumbai), few interventions profiled here have made the teachers their primary focus - looking at their professional development and allowing and supporting them to evolve ways of changing their practice. We also wanted lo understand and profile teachers as people who have actively tried to address and improve their work-spaces and their practice. Both KSSP and TNSF have a number of dedicated teachers in their midst. We also knew of teachers in Andhra Pradesh who were involved with the Bharat Gyan Vigyan Samiti (BGVS),

and had heard that the teacher's union in Andhra Pradesh had actually taken on academic issues as part of their activity. We were keen to find out if the teachers' involvement with such education related activism had an influence on their own classroom practice. Unfortunately we were not able to document any of these efforts.

What works and what does not

Most of the efforts that we have documented have been on a small scale, with the exception of a few such as Uttarakhand Seva Nidhi, Pratham or Eklavya's science programme, HSTP. At least on that scale - in all cases except the community mobilisation efforts - success was tangibly felt in the implementation phase. Equally striking were instances where, when the supporting organisation left, few traces of the intervention remained in the schools. In the case of the HSTP, teachers do continue to interact with Eklavya in forums outside the school. But the larger system does not seem to have any memory or trace of the efforts of these programmes. Officers and teachers get transferred. Records are not kept, and the programmes themselves are not publicised. Also, systems of interaction between the government and these efforts are not well established. Frequently, the SCERTs are not aware of the details of these efforts. Thus it is not clear whether one can judge the meaning and significance of such programmes through concepts such as 'long-term impact'.

Programmes and interventions themselves are subject to the pressures of being time-bound and ultimately are driven by funding. Organisations are rarely geared to running programmes indefinitely; therefore they need to have worked out plans of how the project will close, and how their work can feed into the system arid also acquire significance within the broader landscape of educational activities. Most innovations seem to serve the purpose of being sites of demonstrating ideas. In this respect they are important, but their significance is not just in running the programme, and in making a difference to teachers and children during this period and in their localised space. As sites that demonstrate ideas that work, they must be documented and shared so that they can feed into the system's repertoire of ideas and resources. They can lend themselves to producing materials, books and training packages that can be utilised by others. Often, those involved in designing and implementing the programme rarely budget time for this activity. They also place the onus of documentation on others.

Ideas have spread in different ways. Innovations that have developed curriculum and textbooks (Eklavya, HBCSE), or teaching-learning kits (Rishi Valley REG. Suvidya) have been able to travel beyond their own geographical areas. Eklavya has believed in the philosophy of assisting other groups to develop similar curriculum materials, and has worked with groups in Gujarat, Ladakh and Assam. Others such as the Rishi Valley REG have formalised transfer through a one-month intensive training, where teachers from other states 'can create' the kit and are able to see the curriculum in action in the rural schools. Generic features of the core areas remain the same but are adapted with songs, stories, visuals and factual details of the local area.

The development of such tangible resources could ensure that even with shifts in leadership, project staff or teachers, there is still a well-detailed out resource that can lend continuity to the innovation. In newer curricular areas such us health, environment or peace education, (he development of such resources can take enormous effort over many years. It is possible that tangible resources are more easily spread as compared to more intangible inputs in changing teacher practice or school culture. However, as long as state governments control and limit the textbooks that can be used in recognised schools, these efforts can remain peripheral, mute reminders of better ways to design textbooks and teaching-learning materials. Eklavya's middle school curriculum and textbooks in science, after years of being used at the district level in Madhya Pradesh, were withdrawn through a government order, with no adequate explanation. The science and mathematics textbooks of the HBCSE continue to remain formally outside the reach of school children and teachers.

All projects are ultimately crucially dependent on the ability to work with teachers. Their sustenance depends on gaining additional spaces for teachers for academic and professional work within the school system. This includes making space and time for meetings, for planning, for reflection and feedback, and providing support to teachers in the form of resources, materials and ideas. Many of those whom we interviewed said that the implementation of the intervention is constrained by the teacher's limited knowledge of the subjects they are to teach, and of pedagogy. They have found teachers unwilling to take on 'burdensome' additional work, at someone else's behest, to meet someone else's agenda.

Teachers need access to the larger picture, so that they can sec the interconnections between inputs that affect their localised work, and larger educational goals.

In-service teacher training has supported most efforts to introduce curricular changes. Eklavya terms it a 'package' which includes the textbooks, teacher training, monthly meetings and examinations. BVIEER, Maharashtra, attributes its success with teachers to keeping the programme simple, with a few goals, and to establishing links with existing textbooks. Suvidya, Karnataka, has recognised and provided a space for academic support and peer exchange in its work with teachers. It was seen as crucial to involve teachers in implementing an innovation successfully. Interventions that work over a wide geographical area have set up duster resource centres, or worked through cascade training, as a way of scaling up. The genesis of the current cluster and block resource persons and centres established through the DPEP can be traced to the model used by such non-governmental organisations in scaling and supporting their interventions. Organisations such as MVF and Pratham have appointed para teachers to supplement the teachers' activities in school, either to teach younger children, or give special attention to those in need of remediation.

There is a need for innovative ideas to infuse the formal pre-service preparation of teachers, and a few organisations such as BVIEER. GEE and Seva-in-Action have developed such courses for teacher training institutions, or added components to existing curricula. The B. El. Ed. of the University of Delhi has also tried to comprehensively address the redesigning of teacher education curricula to better prepare teachers to work in government schools and with first generation learners.

Most interventions have been subjected to review both internally and through the organisation or funding agency inviting review. These have usually tried to provide qualitative feedback in the design of the intervention, especially when it is poised to enter into a new phase or expand. Occasionally these have also tried to demonstrate improvement in children's learning. This is a part of programme evaluation that requires more detailed and rigorous design if it is to be useful. To begin with, the time frame of such assessment needs to be well-considered, and should ideally be built into the life of the programme. Detailing and defining the model of intervention would be valuable in clarifying the intervention itself, and also emphasising the need for responsibility to the different stakeholders - children, teachers and parents. There is also the point in returning to a field area even one year alter the peak of an intervention to carry out an evaluation. Further, if programmes claim to specifically enhance aspects of children's learning, then techniques must be able to capture the gamut of changes that are anticipated; they cannot be based on conventional test

designs alone. Frequently, programmes do not directly situate themselves in the classroom, and may choose to act through teachers and curriculum materials. Assessments and interpretations of results then need to account for expectations according to whether they are first, second or third order outcomes of the intervention. This is especially important while working in systems where there are several fulcra at which things t moved and decisions taken, and the 'control' in the hands of the intervening agency is frequently very minimal, and sometimes only nominal. Needless to say, such documentation and evaluations, however difficult and inconclusive, are essential.

Working with the government

The relationship between the state and NGOs is determined by the three roles that the state plays: its regulatory function (policy and monitoring), funding, and its larger political agenda. The ways in which NGOs conceptualise their work are also influenced by the policies and politics at the centre, state and local level.

An NGO often has a precarious locus standi within the government system. Organisations have been asked to leave at any time and for poorly justified reasons. Pragat Shikshan Sanstha has worked with schools ranging from 250 to 8 in number, in the course of its work with *the Zilla parishad* schools. Despite being the best known, whole-school intervention in the country, Eklavya has had to close down its work in government schools. In Mumbai, the teachers' unions have pushed for the Pratham-appointed assistant teachers' removal. It appears that interventions that are large are more threatening and come in for greater scrutiny. Newer interventions inspired by the corporate way of functioning, such as Akshara Foundation and Azim Premji Foundation. Karnataka, enter into Memoranda of Understanding (MOUs) with the government to buffer themselves against external changes. Ostensibly, this should ensure a joint commitment for a certain minimum period of time, and make the intervention less vulnerable to closure. Despite their ability to bring in substantial resources, these programmes still require continuously harnessing the goodwill of key government officials to keep things on course.

In the initial phase of their work, many interventions received support, and therefore endorsement, from the Ministry of Human Resource Development and other central and slate departments (Abacus. USN, FRCH. Digantar, Eklavya). This support has been crucial in helping them

experiment and develop their ideas. Other interventions (Suvidya and Seva-in-Action) have served as resources to government programmes such as DPEP and janshala, which deliberately sought the assistance of outside agencies, thus providing entry gateways to NGOs. In such instances, the scale, pace and mode of functioning are often set by the government programme rather than the NGO.

Policies have also played a role in determining innovation and spread. Environment education received a fillip thanks to the National Policy on Education, 1986, and the more recent Supreme Court verdict making it a compulsory part of the curriculum. It has thus been able to spread across many states of India, particularly through rewritten textbooks and supportive teacher training programmes. Health education, an equally important area, has not received the same benefit, and significant interventions such as the KRCH project hate not been able to go to scale. Political will and a well-formed government policy are required to keep alive the space within the system for curricular innovations.

The future of working innovatively within the government schooling system, and contributing to its change, promise to continue to require persistence and innovation. There is an overall climate for and willingness to involve or work with NGOs and flinders; yet the modalities for this can be quite unpredictable. With transfers and changes in policy being fairly frequent, persistence and willingness to re-educate and re-engage with new incumbents in offices is a constant requirement. Moreover, there are now several points of entry into the system and several agencies, all of which need to be kept informed and in the picture, thus taking up a lot of effort and time on the part of the intervening agency.

Many of the efforts described in this hook have remained out of the 'mainstream' in spite of their proven effectiveness. One of the reasons for this is the tight control on curriculum and textbook preparation. Working with the government itself requires constant lobbying and leveraging; the support to efforts can also be unstable and unreliable. There are constraints and pressures on resources and scheduling which can be difficult to negotiate. At the same lime, the government's ability to hold outside agencies accountable, is not very good.

The government itself may take on the role of the prime innovator. This can lead to minimalist and standardised notions of quality which may be necessary from the point of view of monitoring a system, but are not necessarily good as measures in innovative efforts. In recent times, several exercises of massive retraining of teachers have been launched, and

technologies such as TV, radio and computers placed in classrooms. These days, the field of government school education is quite 'noisy' with interventions. This has led to 'squeezing out' space for experiments and other initiatives; a situation dial is even more heightened with more and more centralisation of planning and budget control.

In this scenario, carving a niche with a distinctive identity can be difficult. Arguments are now made both by government and funding agencies that the efforts of non-governmental agencies must be directed at assisting the government in implementing its own 'innovative' reform programmes. Indeed, a space has opened up for localised agencies to support ongoing trainings and related activities at the district level. This development has thrown organisations into some confusion regarding their raison d'etre; and funding agencies also, regarding what kinds of efforts they should be supporting. The field has now become differentiated and requires effort at two or three levels. For some it is to mobilise effort and support ongoing work. For others the focus will continue to be on making breakthroughs in new and hitherto little explored areas. These will require more expertise, training, documentation and evaluation. For still others it will be to sustain specific areas which have still not found a place within 'mainstream' thinking, or to keep some important ideas alive and working so that they can continue to demonstrate and communicate the possible.

1. LEARNING FOR LIFE

Amrita Patwardhan

Pabal, a small town in Maharashtra, was brought on to the educational map by the pioneering work of Vigyan Ashram. The place is known for a Jain temple and as a shelter for Mastani and Bajirao during the Maratha period. Other than this religious and historical significance, Pabal is perhaps one of the most typical of small towns in Maharashtra, located in a drought prone area, with modest civil amenities.

The beginnings

Vigyan Ashram was started by Dr Kalbag in 1983, as 'a centre for learning and innovation', with a desire to reach out to rural populations deprived of a meaningful education. A large number of rural children cannot cross the hurdle of completing the state board exam (SSC) for Class 10 and

are treated as ‘failures’ by the education system. Dr Kalbag felt that if majority of the students cannot complete the SSC exam, it is the education system that fails children. It is this system - with its faulty teaching - that is the failure, not the children. This belief motivated him to build a centre for learning that would be open to all, where everyone could learn while experimenting and working with their hands, where each one could learn from his or her own mistakes.

Dr Kalbag had earlier interacted with rural children in the schools of Mumbai through the Homi Bhabha Centre for Science Education. Principals and teachers from government schools told him that children who ‘fail’ in schools are good with their hands. Any programme in the school and they are ready to set up the microphone. Dr Kalbag wrote to the educationist. J.P. Naik of the Indian Institute of Education (IIE), around that time. He joined IIE**,** and its rural programmes included night classes in Pabal. In 1981, he travelled around for some days and talked to people to find out what they wanted. In 1982, he visited Pabal every month for 3-4 days to observe the area through the different seasons. His thoughts had now crystallised, and his proposal to the Department of Science and Technology was approved in 1982.

The philosophy and the programme

The unusual name ‘Vigyan Ashram’ embodies the vision of this mission. For Dr Kalbag, science is the search for truth. Finding out the laws of nature and the basic properties of things is science, a dh*arma.* But equally important is building an individual’s life based on a value system that inculcates simple living and high thinking. He believes in demystifying science and putting it to use to enhance everyday life. Science, he believes, should not remain a matter of academic curiosity, nor is there any need for ‘popularising’ science for its own sake. If one demonstrates that the basic principles of science - experimentation, anticipation, and hypothesis-building - ‘work’, people would naturally adopt the scientific temperament. It will then he adopted as a way of life rather than as something that is far removed.

Vigyan Ashram has attempted to develop a programme of multi-skill training, with ‘learning while doing’ as a method. It encourages the school to provide community service; thus situating education in the context of real life and making it relevant. The work is twofold: the Ashram offers a course for multi-skill training on campus for one year. A similar course is offered in

a number of schools run with government grants in Classes 8, 9 and 10, following the Vigyan Ashram model.

The Ashram has been interacting with government schools since its inception in 1983. Initially, students from Classes 8-10 from the Pabal High School came to the Ashram, once a week, to learn some skills as part of their work experience period *(karyanubhav}*. In 1985, the state board of Maharashtra approved the Vigyan Ashram programme as a Rural Technology course. It became part of the formal curriculum. For the first five or six years, the course was run at the Ashram, where the students spent one day. Later the programme was conducted in schools as a pre-vocational technical experience. The Rural Technology programme presently runs in 25 schools in Maharashtra - including Pune, Nandurbar districts, Konkan. Nilima Misra, who supervises the programme in the schools, says, "The main educational value is to teach different skills which can provide meaningful community service *(lokopyogi seva)"*

This course is divided into:

a) **Living world**

- human society, including home and health

- plant and animal life, including agriculture

b) Non-living world

- engineering

- energy and environment.

Some of the skills offered in the training include poultry, electrical repair, blood and urine tests, water and soil analysis, sewing and knitting, lathe work, food preservation, welding and soldering, and computer training. Courses are added on in response to people's needs: such as puncture repair, making bullock-cart wheels or pregnancy testing. "Being open to people's needs - what they want is what is important. So while we had the pathology testing service, what tests to have were determined by the needs expressed by the community," says Dr Kalbag.

Goals of the programme

- Help students develop the capacity to think and act
- Widen their experience base and help them assess their own potential while inculcating the spirit of enterprise
- Expose them to the modem world of industrial and technological operations

• Introduce new technology to rural students and make its service available for rural populations

• Create a new work culture that inculcates values like hard work, invention, experimentation, and the dignity of labour.

For Dr Kalbag, true education is 'learning how to learn'; and the curriculum is a medium of learning these principles of learning. The skills are not the objective, the end point, but a way of gaining experience and insights. Most of the activities of the Ashram have been supported by funds from the Department of Science and Technology, Ministry of Human Resource Development, and Council for Advancement of People's Action and Rural Technology (CAPART).

Spread of the programme and monitoring

The course at Vigyan Ashram runs for 300 days, training about 20 students in different skills. Most of the students who enrol for the course are 'SSC fail', Says Nilima Misra about the training. "Mastering the skill, understanding the concept, as well as the ability to teach that skill is important. While most students are able to learn the skills, learning to teach the concept behind it is not always easy."

Students of the course become instructors, and are expected to practise the skill that they teach and earn a living through the commercial use of their skills. This ensures that the teacher practises the skill - not just out of academic interest - but as an enterprise. There are many organisations who sponsor students to do the course at Vigyan Ashram and then initiate a similar programme in their own village. In this way, the idea has reached Nandurbar, a remote tribal village. Recently, the National Open School agreed to give a joint Certificate to the course run in Pabal. This will enable the idea to spread to more students from different parts of the country.

The Rural Technology programme presently runs in 25 government schools in Maharashtra. The Ashram has government permission to undertake the monitoring of these schools. Each village community chooses instructors who teach in the schools. Each school has three men and one woman instructor. A school teacher coordinates the programme and teaches theory. Each month a report is filed with details of the practical and community work carried out.

In the initial years, the instructors were trained at Vigyan Ashram. However, currently, any new school approaching Vigyan Ashram to introduce the programme in their school will have to send their instructors

for about one-and-a-half months training to a nearby school that has adopted the programme. “Instead of having a centralised training in Pabal for everyone, we provide training for new schools in old schools in the vicinity that we consider good, and that is how we have decentralised the training,” says Dr Kalbag.

The programme in schools is monitored by the Ashram. They make two field visits in a year to the schools and have yearly meetings with the coordinators. Another resource organisation, Gram Mangal independently assesses the programme, through two annual visits. The evaluation is based on the quality of products made by the students, and the services offered to the community. “We do not take ‘exams’, but see whether the services are actually provided. There is a parent-teacher meeting, where the usefulness of skills learnt by the children are discussed. Thus a dialogue with the parent community is kept alive. Parents find the programme useful and they also share examples of students using the newly learnt skills at home - be it candle-making or soldering,” says Dr Kalbag.

For the programme to spread, a better system of monitoring of the activities in the different places needs to be set up. Vigyan Ashram is in the final stages of setting up a remote monitoring facility through net conferencing. A person trained to manage the computer, internet and video is expected to organise an interactive video conferencing session between the school and the Ashram. This way lessons going on in different schools can be accessed while located in one place. This will allow for better contact with schools, and encourage the spread of the programme to many more places.

One of the new areas that Vigyan Ashram is involved with is in the development of educational CDs. They feel this is necessary to ensure quality as the programme spreads and is replicated in other places. CDs can serve as important educational aids for instructors who are often able to master the skill, but not able to explain the theory behind it. CDs on basic mathematics, English, MS Office and computer technology are already in the market. Others are being developed.

Some reflections

For Dr Kalbag, Vigyan Ashram is a step towards altering the system of education. “I believe that the concept of school itself has become obsolete. The syllabus, classrooms, everything. Present schools are based on the factory model of mass production, where all are supposed to do the same

things. Rather than trying to spend time fighting the present system, we feel it is better to create and strengthen the alternatives, which we feel will make the existing system outdated."

Dr Kalbag, the man behind this work, comes across as a person with great determination, drive and clear direction about what he wishes to achieve. Seeds of the work that have taken shape were sown in his childhood when he enjoyed several opportunities to experiment and learn by himself. The desire to make such opportunities available to other children, while growing up, was one of the inspirations for starting Vigyan Ashram. It was way back in 1956, having completed his studies and at the age of 27. Dr Kalbag decided that the next twenty-seven years would be his *grihasthashram,* when he would earn for his living; followed by his *vanaprasthashram,* when he would work for society. What is remarkable is that he stuck to the vow he took as a young man and started Vigyan Ashram in 1983.

Unlike most people who are worried about the continuation of the organisation. Dr Kalbag thinks differently. "Why should one assume that every organisation should go on? I feel a good idea never dies. Every organisation does not have to survive. If the idea is good, that will remain. The work and its objective should be carried forward. Who and which organisation is taking it forward are not important. Work is important, not the person or the organisation."

A recent survey carried out by Vigyan Ashram in and around Pabal bears testimony to the way the Ashram has changed the lives of many individuals. Several young people who have done these courses were found to be running different enterprises successfully, using the skills that they had mastered in the Ashram. Poultry farms, soldering units, building of domes and tailoring units have not just provided a source of income, but also provided self-confidence and dignity to many who were branded as 'failures' by the education system. Such examples help the people in Vigyan Ashram carry out their work despite the odds.

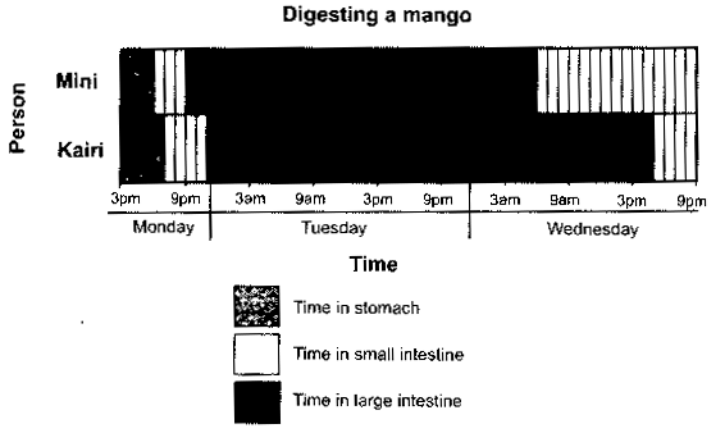
Vigyan Ashram illustrates how existing government schools have spaces that can be explored and used, introducing meaningful educational experiences within the present system. We all know that the education system resists change, but Vigyan Ashram demonstrates how meaningful change in certain areas can be brought about and sustained. The way in which Vigyan Ashram has made a difference to the lives of the rural youth is undoubtedly important. But equally important are the lessons to be drawn from this approach about the possibilities of bringing about change in the education system.

What's the same? What's different?

1. Is our digestive system similar to a kitchen grinder? How? How is it different? What things happen to the food in the digestive system but not in the grinder?

Figure it out

1. Mini and her friend Kairi ate a delicious mango at 3 pm on Monday. This graph shows how long it took them to digest the mango.



Look at the graph and answer these questions:

a. Where was the mango at 4 pm on Monday in Mini's digestive path?
b. Where was the mango at 4 pm on Monday in Kairi's digestive path?
c. Where was the mango at 10 pm on Monday in Mini's digestive path?
d. Where was the mango at 10 pm on Monday in Kairi's digestive path?
e. Did Mini and Kairi both take the same amount of time to digest the mango?
f. How many hours did it take each of the girls to digest the mango?

Until recently, in hotels and canteens in Mumbai, customers could see notices which read: 'the hotel owner also eats here'. This proclamation reassured customers of the quality of food. While such hotel owners are confident enough of their own establishments to eat there, government employees and elected representatives do not use government schools for their children. Teachers, MLAs and ministers shop around for the best 'value for money' they can get from private schools. The critical question for those of us who see the worth of having public educational institutions open to all common people is: how can we ensure the quality of education in these schools?

We are all familiar with the situation of government schools. They have little funds for infrastructure, and teachers are often burdened with non-

academic tasks. Yet in many ways, the academic quality of private schools too is not much better than that of government schools. The teaching methods are boring and based on role memorisation of textbooks. Teachers rush to complete the syllabus, and difficult concepts are neglected. Only children who have tutoring help at home can manage. Children who are first or second generation learners cannot rely on a home culture that supports school learning - often the language is different and there may be no encouragement for reading or doing homework, let alone home tutoring. It is hardly surprising that as it becomes more difficult to keep up with school lessons, such children often absent themselves, and eventually drop out.

The government schools do have some positive features: they have spacious buildings, and the teacher-pupil ratios are reasonable. Teachers are qualified and paid well. To energise government schools and take advantage of these positive aspects, the Brihanmumbai Municipal Corporation (BMC), along with the Homi Bhabha Centre for Science Education, initiated project PRISM.

Project PRISM: genesis

The initiative of project PRISM (Project in science and mathematics) was first proposed by the BMC. Sri Manohar Patil and Dr Deepa Bhanushali of the BMC Teachers' Training Centre described the main objectives of the project:

- Strengthen the teacher's understanding of fundamental principles in science and mathematics
- Create an environment in the classroom so that children will ask questions, rethink superstitions, etc.
- Enthuse teachers and students to think beyond the textbook.

To provide this programme with the academic support it requires. BMC approached the Homi Bhabha Centre for Science Education (HBCSE). HBCSE is a centre of the Tata Institute for Fundamental Research. It has a long history of working with government schools in Maharashtra to improve the quality of science and mathematics education. Eighteen years ago, the centre worked on a project to make the language of science textbooks more accessible to students and teachers. They have also supported the learning of Dalit children through extra classes for them on Saturdays. The results of this effort showed that given the required facilities, even children from very low socio-economic groups can perform well in examinations. More recently, the centre has been developing an alternative, creative science and

mathematics curriculum, teaching-learning materials, and laboratories. Responding to the opportunity of working with sensitive officers in the BMC the centre readily agreed to participate in PRISM. In 2002, the project entered its second year.

Strategies to train teachers

BMC has about 1200 schools in its purview, and it would be impossible for HBCSE to interact effectively with all of them directly. Drs Gambhir and Subramanium and Sri Mavlankar, who took responsibility for the project, suggested that a two-layered training scheme could be adopted. HBCSE would directly work with about 50 enthusiastic teachers for a year, and these teachers would, in turn, become resource teachers for the others.

About 48 teachers, experienced and well qualified, were selected from two school division areas which are fairly dose to HBCSE. The current syllabus and textbooks being used in the state government schools in Classes 3 and 4 formed the basis of the training. The training addressed questions such as: How are science and mathematics to be taught? What are teachers expected to teach? What problems do students face?

Teachers were introduced to four foundational principles for organising teaching in primary schools:

- Use of teaching aids, experiments and activities
- Use of songs, stories and games to make concepts enjoyable and accessible
- Develop conceptual understanding through classification based on similarities and differences; hypothesise, experiment and make inferences
- Familiarise children with measurements and measuring instruments, so that estimating and measuring accurately become a habit.

The uniqueness of mathematics is that progress is made step-by-step. For example; understanding numbers forms the basis for addition and subtraction, which in turn is the basis for multiplication and division. At the same time, each new level enriches the child's understanding of numbers. In the PRISM training, the teachers' attention was drawn to each of these sections, and appropriate tools for teaching each of them were suggested. Model lessons conducted by the HBCSE team helped teachers appreciate the usefulness of the teaching aids. Matchboxes and bundles of matchsticks of 10 and more were useful for place-value concepts. Music and games added to their enjoyment. There were activities to challenge the belief that all

problems in mathematics have only one correct answer. To do this, teachers were posed with thought-provoking problems. For example: “Formulate a question which has 18 for an answer”. This generated many answers: ‘9 plus 9’, ‘9 times 2’, ‘6 times 3', ‘adding the individual digits in the number 99’, etc. Similarly the problem: “Divide a square into four equal parts”. Very naturally, such questions made teachers think beyond their textbooks. The teachers taught each other in simulated classroom sessions and also observed one another teaching student in a nearby school.

In science education, it is important to understand the interrelationship between things and events and develop the ability to clarify these relationships. A member of the HBCSE, team shared an example from Class 4 titled: ‘Tame and Wild Animals’. Usually this topic is taught by giving examples of domestic and wild animals, enumerating the usefulness of domestic animals, and concluding by answering questions. Instead, a debate was instigated in the class by posing the question; ‘Can tigress milk be used by humans?’ This made the class very lively and all children participated. Solutions like cutting the tigress’ nails, putting a muffler in her mouth, and milking with a machine, were all suggested! All the while the children were certain that tigress milk cannot be used, yet they had to put in a lot of effort and think about what taming an animal involves. Surely humans seek answers to such questions and have to weigh the pros and cons! This example encouraged children to connect their textbook with the world outside.

Teachers who were trained in the first round became trainers for the second round, reaching out to about 400 more teachers. These teachers-turned -trainers did not have the aura that the HBCSE faculty have, and some of them were also quite young. Yet their work was effective because they made sure that they were always respectful of the experiences of oilier teachers, and they systematically explained all the aspects of training: from the importance of children’s questions to methods of teaching. All of them had the tendency to follow the pattern of their own training quite closely, but a few did use different examples. Video recordings of classes were made and specific issues from these were discussed. There were often heated debates on the pros and cons of the teaching methodologies, and these brought out some important insights: why children get easily distracted, how a good and active teacher’s time can get wasted, how teachers with good communication and acting skills have an advantage, how poorly used teaching aids can create disruptions, and the reasons for these.

Pushpa Dubey, a teacher from a Hindi medium school in Collector Colony, Chembur, recounted, "In the new style of teaching, we use a lot of the children's experiences and previous knowledge. Instead of a lot of boring talk, we discuss things with the children. There is a lot of difference when science lessons are taught along with scientific tools.

Once we learnt the powerful tool called classification, we even classified things like the friends and enemies of our teeth. Now, if students ask difficult questions, we do not feel cornered, instead we feel more enthusiastic. The environment in the class is very good now." Other teachers recalled many of the inexpensive teaching aids they had learnt about to teach mathematics. They felt students ask more questions now and this makes the class more lively and interesting to teach. They added that sometimes the classes do get out of hand, and need to be managed.

Reflections

Project PRISM is still young. There are many areas of the syllabus yet to be addressed, and many teachers still need to be trained. Strategies on how to extend the project to reach the remaining schools are being thought through. The project's contribution to both the teachers' professional work and the students' learning is well accepted. Every child, even if born and brought up on the streets, learns to walk on his own, feel, and to speak. If children are bored of learning in schools and feel like abandoning their studies, it should make us look at the formal education system more critically. It is not easy to persuade teachers to give up old styles of functioning. To cultivate an atmosphere where teachers adopt new teaching styles, the original training will need to be followed up with 'boosters'. Their experiences will need to be recognised and their doubts and problems addressed. Examinations will have to be redesigned to support these curricular changes. The load of non-teaching work and administrative demands that de-motivate them will need to be re-examined seriously. These challenges are well worth overcoming if we want to provide a more lively and critical education to our children. The cooperative efforts of the Brihanmumbai Municipal Corporation and the Homi Bhabha Centre for Science Education are an important contribution to improving the quality of the public education system.

3 LEARNING WITH MATHS LAB

Padma M. Sarangapani

Mathematics is an abstract subject but at the school level it must be learnt experientially particularly in the primary school years. When we speak of experiential learning, we mean experiences of three kinds. Children need to have *concrete materials to manipulate* at the time when they are forming their mathematical concepts, such as numbers, number operations, and fractions. Experiences such as feeling the 'fiveness' of five stones, five pencils or five trees by placing them in one-to-one correspondence with each other; or the different ways in which twenty-two pebbles can be partitioned or broken into groups; or counting in groups of five and ten - these experiences are vital for the development of number concepts.

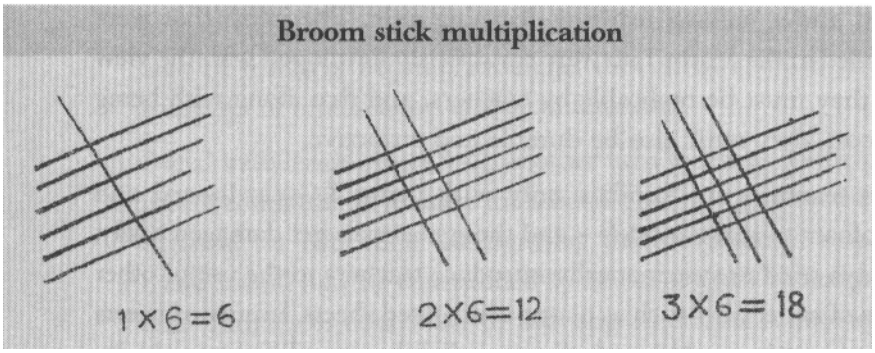
Children also need opportunities to 'mathematics e' their world. When they use their mathematical knowledge to act in situations, their understanding of the concept deepens. For example, when they have to choose the right container in which to bring one litre of water, or they calculate how many sweets they must bring to class if they want to give each person two sweets, they have an opportunity to *reason mathematically,* and give meaning to mathematical concepts.

There is a third area which is also important for the development of mathematical thinking - the area of *recreational mathematics,* which includes puzzles, games, open-ended explorations and art. This is also important as it not only nurtures children's interest but it also helps to develop their intuitive mathematical understanding of patterns, connections, structure, logic, and strategies.

Many materials for many concepts

Suvidya, a no n-govern mental organisation and educational resource centre based in Bangalore, was troubled by the extent to which memorisation plagues learning in most Indian classrooms. In response, it began developing different kinds of simple and low-cost aids which could be used by teachers, or independently by the children to explore mathematical concepts and ideas. For example, 'rubber digits' are cut-outs with boles in them that match the numeral itself. Thus the rubber cut-out of 3 has three holes, 7 has seven holes, and so on. The teacher can use this set in different ways: **to** help the child understand the concept of a number, its symbol, addition and subtraction, odd and even numbers, and so on. 'Broom stick' multiplication, which involves laying sticks vertically and horizontally and counting the intersections, is an alternative way of working out multiplication facts. Suvidya's intention was to get teachers to realise that

there are many materials which can be used to complement and extend the textbook, to make mathematics interesting and enjoyable.



The 'Maths Lab'

The District Primary Education Programme (DPEP) in Karnataka provided an opportunity for Suvidya to popularise this kind of learning in the government schooling system. A 'lab' of 100 items, about 65 materials and 35 charts, was developed and supplied to the Block and Cluster Resource Centres (BRCs and CRCs) in 1999. Suvidya drew on ideas from various mathematical resource books and designed them into objects that could be included in the lab. The idea of the number line and slide rule was made into the number strip ruler with a movable sleeve running on it. Various kinds of domino cards were developed to be used not only with numbers but also with geometric shapes and names. The folk game *chawkabhara* was adapted to be played with maths questions.

In the DPEP model, BRCs and CRCs are meant to support school teachers with academic inputs. The faculty of these centres are themselves teachers of the primary and high schools. They are trained so that they in turn can train other school teachers. Suvidya's Maths Lab reached the government schools and classrooms through this same mechanism. Each BRC and CRC was supplied with a set of materials: and during the monthly meetings, teachers learnt about the models and also replicated them for use in their classrooms. This was a period of experiential learning for the teachers themselves. Many of them were not confident of their own mathematics knowledge, and learning about the items in the lab provided an opportunity for their own concept learning. In addition, they also learnt about making teaching-learning aids. The items that were included in the Maths Lab were consciously developed with the view that they must be replicable by teachers, and that along with being low-cost, they must also be durable and attractive.

Most teachers are familiar only with using KG cardboard and Styrofoam to make models - and these materials get damaged easily. Suvidya tried to systematically introduce teachers to the use of other kinds of materials - such as plastic corrugated sheets, laminated sheets and rubber sheets. Although these are slightly more difficult to obtain, the teaching aids are fur better and able to withstand wear and tear when used by children. Suvidya also realised that there was a need to spend more time with the GRG and BRC teachers to educate them on the choice and handling of various raw materials - there was a tendency to revert to the flimsy cardboard and Styrofoam without thinking through the consequences of these choices.

During the three years (1996-1999) when the Maths Lab was being implemented in the four districts of Phase 1 of DPEP, the feedback from the GRC members was that it was quite popular. The DPEP emphasised 'activity-based learning', and the lab made this possible in a concrete way. The members of Suvidya are also perceptive when they add that part of the success was because the lab was so tangible - there were models there that could be talked about and that bad to he replicated.

Some reflections

The pace and scale at which the DPEP programme obliges an organisation to work and meet targets can prove inimical to such efforts, sometimes leading to inappropriate utilisation of resources. Furthermore, the budgets and schedules do not permit sufficient response to field situations. For example, Suvidya realised quite early that many of the members of the BRCs and particularly the CRCs were not confident in mathematics and required content enrichment, though it was not possible to incorporate this into the training programme. Everyone felt that four days were not enough for the training, as it was necessary for the faculty to explore and handle every model in the Maths Lab, but this too could not be extended. It also became obvious that in order to support the continued effective use and growth of the Maths Lab idea, the DPEP would need to have its own internal core group of resource people. Suvidya, on its own initiative, nurtured a 'core group' of handpicked teachers who could play this role. Unfortunately many of these teachers do not have opportunities to contribute to sustained mathematics teaching, as the programme does not structurally incorporate this into its design.

There were other questions too dial needed attention, such as: How will the BRCs and CRCs maintain their academic supportive function? What will

they do when the present staff returns to their schools and new untrained people take their place? Why could they not be located in or attached to primary schools, so that they would be able to maintain a more concrete and synergistic link with their academic role in schools, rather than treating workshops as administrative requirements? Already, in the last two years, BRC staff has become less enthusiastic about their work as they feel they are only expected to 'implement' workshops conceived elsewhere, and to write reports. They felt there was little opportunity or encouragement to respond to the immediate context.

In the classroom

During a visit to three of the schools in the Gudibande *taluka,* the amount of teaching-learning material on display in the classroom, and in cupboards, was impressive. Many of the Maths Lab materials too had been replicated, but almost all the items had been made out of KG cardboard and old greeting cards. It appeared that the effort of replicating these materials had at least ensured that teachers were familiar with each item. But as they took out the materials from neat packets, the rust marks made by pins where they had been secured, were clearly evident. It seemed obvious that the materials had never been given to the children to handle and play with.

Ganesh, who had worked at the BRC and who was remembered by people at Suvidya as an enthusiastic member of the core group, had returned to his high school where he teaches mathematics. The person who is now in charge did not seem to know much about the materials.

On the other hand, it was a treat to visit the school at Pulisani Oddu and spend time with the teacher, Manjula, and her children. The number of models she had replicated, using fairly sturdy materials, was impressive. What was even more heartening was that they showed signs of being handled by the children freely and frequently. Even as she took some pieces off the shelf to show me, children clamoured to be given them, and they settled efficiently in pairs and small groups to begin playing. The classroom vibrated with the activity and richness of opportunities for learning that the Maths Lab opens up. One could see how games and puzzles included in the lab encourage children to be independent, and to interact in the peer group. It was a pleasure to see children taking initiative, regulating themselves, and coming to the teacher or to me to show a result, to clarify a doubt, to return something, or to ask for something new. They were confident and felt free to point out to the teacher when she was wrong.

Ganesh wished that other teachers could come to sec Manjula's classroom. Then they too would be inspired to take their models out of the cupboard, to give them to the children. They too would begin to appreciate that in the midst of the apparently noisy indiscipline and activity, mathematics and a lot more are being learnt, as never before.

4. MAKING WAVES THROUGH INTERACTIVE RADIO

Sherna Ghandhy

It is exactly 11a.m. on a Wednesday morning, and Class 5 students of the *Zilla parishad* school in Kalewadi village, about an hour's drive from Pune, are sitting in neat rows on their floor mats, all eyes fixed expectantly on the slightly battered radio that their teacher has just switched on. As the familiar music heralds the beginning of the 'We learn English' programme, 22 young voices lustily chorus: *I learn English /I learn English / So do you / So do you/ We will hear and speak it...*

This is the prelude to a carefully scripted radio programme that teaches English-speaking skills in an interesting manner, using everyday situations, songs and drama, via a cast of characters that has already acquired quite a fan following among the young listeners in rural schools in Maharashtra.

As the radio lesson proceeds, teacher Swati Ligade writes down key English words on the blackboard. There are appropriate pauses during the programme for the children to repeat what the radio teacher has said. At one point, two of the children have a little question-answer session. There are funny lines where everyone giggles; they understand it because key phrases are said in Marathi and then translated into English by the radio teacher, Sunita *mausi,* who guides the children Ranjana and Santosh in the programme - and thus the real class - through the intricacies of the English language.

The 15-minute programme is broadcast from All India Radio's Pune station three days a week. It has been devised by the Centre for Learning Resources (CLR), Pune, a non-profit educational centre established in 1984. CLR works to improve the quality of elementary education for disadvantaged urban and rural children, providing consultancy in developing curriculum, designing education projects and conducting research - mostly at the teacher and trainer of teacher levels.

Why English and why radio?

Though students start learning English in Class I in government schools in Maharashtra, CLR found ample confirmation of the popular perception that in fact even by Class 5, after five years of learning it most children can speak no more than a few poorly constructed sentences. ‘’The reason is that the teachers who teach English in most government schools are themselves not proficient in the language, nor do they know how to teach it,” says Dr Kurrien. The CLR radio programme was created to teach English in a manner that is child-friendly and requires minimal knowledge on the part of the teacher. Radio was the chosen medium because it is low-cost, can work on batteries when frequent power shutdowns occur, and it has a wide reach: an estimated 97 per cent of the population can access radio.

The pedagogy is known as Interactive Radio Instruction (IRI), and has been used in many countries such as Nicaragua, Costa Rica, South Africa, and Thailand. It allows listeners to hear English being spoken correctly, and - most importantly - it also allows them to speak it in the course of the lesson. The distance teacher does the bulk of the teaching, directs activities such as exercises and songs, and answers questions that are raised within the lesson. There are time slots during the broadcast for children to respond to questions, or dialogue with each other. The class teacher facilitates this process and adds to it after the lesson is over. It thus turns the traditionally one-way technology of radio, into a two-way one.

Preparing the ground

CLR first tested the waters by carrying out a three-month pilot project involving 15 schools, using audiocassettes that incorporated the interactive approach. Staff closely monitored five of the schools to gauge how the lessons worked in the classroom and what teachers and students felt about them. Post-test results showed that there was a huge improvement in the speaking skills of the students, and the confidence with which they handled the language.

Before the radio programme was launched in July 2001, a baseline study was conducted in 10 rural and 10 urban schools in Pune district, with 600 students randomly selected and tested for their listening, speaking, reading and writing skills.

All the lessons were scripted in-house by CLR staff. The speakers or ‘actors’ were selected from staff and friends, and the recording was done professionally in a studio. With the co-operation of municipal and Zilla

parishad education officials, 612 radios were distributed to urban and rural government schools in Pune district. The programme began with 88 lessons for Class 5 in 2001-2, subsequently adding 81 lessons for Class 6 and 80 lessons for Class 7, along with repeat broadcasts of earlier lessons.

Programme format and structure

A typical 15-minute radio lesson contains four elements: introduction: modelling; interaction, where the radio teacher asks questions and the children in class respond; and post-radio, where the class teacher asks questions based on the interactive section.

The lessons are interspersed with short poems that the children seem to enjoy reciting. Holding the interest of the children by making the lessons lively is a key element of the programme, and each lesson has been carefully crafted to contain an element of play - a parrot that speaks incorrectly and has always to be corrected, or a dog that appears in the classroom and disrupts a lesson. The radio lessons also promote appropriate attitudes related to democracy, secularism, gender, health, and the small family norm.

In Class 6th, the structure gets a little more complicated. In one lesson, a visitor from Mizoram visits the school where Ranjana and Santosh are studying. In the course of the lesson, they get to speak in English about their school, the daily school routine, the subjects they study, their time-table, etc.

Some programmes for Class 7 simply tell a story. 'Ali Baba and the 40 thieves' was broadcast over four sessions with appropriate sound effects. Words that might be unfamiliar are translated. The exercise is aimed at sharpening the listening skills of children and familiarising them with spoken English.

Teachers receive a two-hour orientation to the programme. A booklet guides teachers in the four steps that they should be aware of: drama, drill, interaction and post-radio lesson. The booklet also lays out the overall goals set for that year, the structure and vocabulary that will be covered, and the songs and poems in the lessons.

Learning from mistakes

The programme has evolved and adapted, as classroom observation proved some elements to be untenable. The basic methodology has not changed but modifications were made in style and content. Explains Dr Kurrien, "In the first year itself we had to make a huge change that entailed a

big expense. We realised that we were speaking too fast. So, we had to break down some sentences and enunciate more carefully. In the modelling section we had to change entire programmes to slow down the speed even more, so teachers could write it down."

''Some stories just didn't work," says Zakiya Kurrien, director of CLR. "Either children weren't catching on, or it didn't catch their interest. So we just threw them out."

"We also realised that sometimes the instructions we were giving, about, say, how the children should interact during the lesson, were too long, or that we had not left enough time for the children to respond," says Mini Shrinivasan, assistant director of CLR. "We also reduced the amount of Marathi translation in stories that were narrated over several sessions when it became evident that the children were not listening to the English closely because they knew the translation would follow."

These problems were detected during the intense monitoring by GLR. Staff monitored each and every radio lesson in three urban and three rural schools in the first year of broadcast. Eight other schools were visited every fortnight. CLR staff thus got to observe how the lessons worked in the classroom, and what needed to be changed or modified.

Spread, successes and challenges

An evaluation in 2002 was carried out by Aapanach, a local NGO. It showed that the English-speaking skills of Class 5 students newly exposed to the programme were statistically significantly higher than that of Class 7 students with three years of English instruction who had not been exposed to the programme. This finding has been reconfirmed by other evaluation studies.

The success of the programme in Pune district encouraged the education authorities of the Brihanmumbai Municipal Corporation to approach CLR for a similar programme. Consequently, a three-year radio programme was launched in 711 Marathi medium schools in Mumbai during 2002-03. Hindi-English lessons are also broadcast in the afternoons. Recently, the programme has been adapted for Jharkhand and Uttaranchal, assisted by a local **NGO** for the monitoring and evaluation of the programme, in Delhi, the project worked for two years but official apathy killed it off.

In Maharashtra, CLR pays for the radio programme aired on Vividh Bharati, the commercial channel of AIR. Though it is an educational programme for government schools, AIR will not waive its fees. In

Jharkhand, the programme is aired on the primary channel and is free, but this means that it can be displaced to make way for a minister's speech or a cricket match.

CLR is convinced that its innovative method of teaching English works. All its monitoring and evaluation studies say so as do the many letters that have been sent by children and teachers. Students write asking if they can meet Santosh and Ranjana, the two children who figure prominently in the programme, and Sunita mausi gets agony aunt letters from listeners who believe she can help them with their problems.

The failure is when teachers simply do not bother to switch on the radio or do not conduct the 15-minute follow-up practice or do not encourage interaction during the programme. In some schools there is a high level of absenteeism of teachers, or there may be one of several local holidays on the day the programme is to be broadcast. Conscientious teachers like Pratibha Nandkumar Hadap teach in a school run by the Pune Municipal Corporation (PMC) and record the lesson if it is relayed on a holiday and then play it to the class the next day.

Swati Ligade, Class 5 English teacher at the Kalewadi School we visited, is also an enthusiastic supporter of the programme and conducts it well. Her students were keen to show off their language skills before visitors and were not in the least self-conscious about their mistakes. "The children like English and are more confident about speaking it though we have been listening only since June 2004," Ms Ligade says.

Looking around this poor village one may wonder at the relevance of English. But the headmistress of the school, Sangita Hingane, is positive that her students must be fluent in the language if they want to study further and compete in the job market. "I would like the radio programme to be broadcast for students from Class 1 onwards," she says.

Says Prakash Parab, the Pune district education officer, "The main thing is that the fear towards English has been removed. Children attending Zilla parishad schools rarely hear English spoken at all. So, the radio programme familiarises them with the language. I have seen that more schools listen to the programme regularly now."

The district education authority plays the role of facilitator, informing schools under its jurisdiction about the programme and urging teachers to listen. But Mr Parab says it cannot do more *than* that. "I could demand that schools submit reports and they will do so but we cannot monitor whether the teacher has actually participated. It will be a long process and I think

schools will follow by example. If teachers see that the English skills of students in a school that listens to the programme have improved, they will be encouraged to try it themselves."

Future plans

CLR is sure that if schools participate in the programme, the students will benefit. *To* encourage wider participation, several schemes have been launched. For instance, a prize is given in the form of a bag of books to the listener who can send in the correct answer to a question related to some previous lesson. "The answer is easy; what we want is to encourage children to listen in," says Mini Shrinivasan. "The prize is given to the whole class and there is also something for the teacher of that class. The idea has caught on. At first we received 10 replies, then 50, and now we get *at* least a hundred."

A Listeners' Club has also just been launched for Pune and Mumbai schools, where the children partake of activities such as making a *diwali* card for their favourite radio character. The first newsletter called 'Club News' has just been distributed. It contains a little 'editorial' from Sunita mausi, a piece on the school that won the prize for the best activity, a poem, a story, and a crossword with picture clues.

A major reading and writing audio programme in English for Pune district has also been planned for 2005, based on a pilot study conducted in 2004. A hundred and fifty lessons will be broadcast twice a week for 30 weeks, starling with Class 5. An activity book 'Let's Read and Write English' to accompany the radio project is being prepared. Interactive pedagogy is being used here too.

Mr Parab is in favour of the integrated programme that includes reading and writing. CLR is trying to get government support for this programme, particularly financing the broadcast on AIR. Mr Parab says that funding is not his domain; it is up to the state government.

The CLR radio programme model itself is readily scalable and has been found to provide a sound complement to the learning of English in school. This, with the high level of enthusiasm to learn the language, suggests it has much to offer to children. Government support and funding could enable such a programme to expand its reach.

5. TEACHING READING

Prakash Burte

Children have a natural proclivity to learn from their surroundings. By the age of three or four, most children will have learnt to talk meaningfully in the languages that surround them. The ability to read and write and express oneself can undoubtedly be hastened by a formal education. Since language also serves as a medium of instruction, children who are weak in language find it difficult to cope with studies in science and social sciences. For children in government schools, many of whom are first generation learners, learning how to read and write can make or mar their time in school.

One could draw an analogy with learning how to ride a bicycle and making it a joyful experience. The first phase involves mastering skills such as balancing, pedalling, controlling the turns, applying brakes, or negotiating traffic and speed. After this phase, a child might use the bicycle to go round the corner for a snack, to the lake for a stroll, to the playground, to run an errand, or reach school quickly. Stunts like riding without holding *the* handle bar while humming a tune only add to the pleasure! This phase allows a child to learn according to her ability and speed, to control the speed of riding, and yes, also to fall off. Despite the falls, learning to ride a bicycle is both pleasurable and meaningful. Can the same method to teach a child to ride a bicycle be employed to teach reading and writing?

While debates on the most suitable method to teach the English language are rigorous and ongoing: the same does not hold true for vernacular languages such as Marathi. In this context, the experiment carried out by Pragat Shikshan Sanstha (PSS) in Phaltan. Maharashtra is significant. *Wachan Sudhar Prakalpa* or the 'Reading Improvement Project' run by the PSS is a programme to improve language teaching in Class 1 of municipal and *Zilla parishad* (ZP) schools.

PSS has had many years of experience in language teaching. Dr Maxine Berntsen, the current director of PSS tells us how she began her experiments in 1978, teaching out-of-school children to read and write. At that time the dominant method of teaching was using the Balbharati state textbooks which were based on the sentence method. Maxine experimented with the 'sight method' - using flashcards with familiar words - in her school. Around that time, a labourer working for a friend of hers asked Maxine to teach his daughter 10 read. Maxine readily agreed, but after a week or two the father complained that his child had not made any progress. Maxine's friend took over, and using the traditional method of introducing sound-Setter

correspondences, taught the girl to read within a week. Thus Maxine began to use phonics, the systematic teaching of sound-letter correspondences. This was much more successful as in Marathi and most Indian languages the correspondence of sound and letter is much more regular than it is in English.

Around this time, Maxine came across the work of a teacher in New Zealand. Sylvia Ashton-Warner had developed the 'organic method' to teach Maori children - the indigenous people of New Zealand. Alcoholism and violence characterised their family and lives, and as a consequence Maori children fared poorly at school. Sylvia realised that their textbooks had very little connection with their lives. She identified some of the most emotionally charged words in their vocabulary - such as ghost, jet, jeep, skeleton, bike, sausage, egg, car, beer, kiss, mummy. These words became the 'key vocabulary' on the flashcards that she developed. Along with this, she also wrote down what children said, and helped them read what they had spoken. Children began to see that written matter was not something alien, but a way of capturing their own experience.

As a foreign language teacher, teaching Marathi to Americans and English to Indians, Maxine observed the impassioned debates among the proponents of various methods of language teaching. There was the direct method, the structural method, the translation method, the grammar-in-context method, etc. She realised that each method had its strengths and weaknesses. She also realised that different people have different learning styles.

PSS began to use similar methods in their experimental school, Kamla Nimbkar Balbhavan where they actively enrolled children from socially disadvantaged backgrounds; and at Prabuddha Vidya Mandir, a school in *a* predominantly Dalit locality. These two schools have developed as resource centres for the project. Resource persons from these schools conduct teacher training workshops, create educational aids (like games, group activities, video films and slide shows) and develop reading material.

These experiences and the knowledge accumulated over 25 years have resulted in the three-tiered integrated methodology used in the reading improvement project:

1. Decoding: The systematic teaching of sound-letter correspondence

When a child learns to talk, she is not consciously aware of the various units of sounds that make up a sentence. But when, for instance, she

becomes acquainted with the sound *'m'* by observing the teacher pronounce words like *mee, maza, majhi, mama, mamee, maakad, mani, magar, masa,* it becomes conscious knowledge. She is now ready to learn a graphic sign representing the sound of *m.* When the teacher uses games like *antakshari* in the classroom, they help children focus on beginning and ending sounds, and develop an awareness of phonemes.

Inspired by Sylvia Ashton-Warner's 'key vocabulary' method, the first lesson of the PSS primer titled *Apan Vacu Ya* (Let us read) starts with words that are emotionally important to children. These include words such as *ha/hi* (he/she or this), *mee* (I), *majha* (my), *aai* (mother), *mama* (maternal uncle), *mami* (maternal uncle's wife).

Through these words children are introduced to the consonants *ma, majha,* and the *matras* (abbreviated vowel signs) *aa,* and *ee.* Successive lessons follow the same pattern of introducing - through a 'key vocabulary' word - some new consonants, and two *matras.* After a few lessons, the child is in a position to start reading in a meaningful way.

2. Organic reading: writing down experiences narrated by children, and then helping them read the written account

If children are encouraged to overcome their shyness and talk freely, they come up with stories about their emotional world. When the teacher writes these sentences and reads them out, the older children are inspired to try and read too. These stories become interesting texts for all children. Here are some stories we heard from Class 1 children of the ZP school:

"I like my grandfather, because he does not beat me."

"There are groundnuts in bhelpuri. There is churmura. There farsan. There are onions in wet bhelpuri. We get bhelpuri on Thursday because the Lonand market is on Thursday."

"My cow's name is Rani. I have two calves at home. My calf sits on my shoulder and bites at the clothes. My calf's colour is red. It says moo-moo whenever it is hungry. I give it grass to eat. While eating the calf makes sounds. My calf's name is Moti."

"I have a hen at home. Her colour is white. She lays an egg for me everyday. Mama makes egg rotis. I like egg rotis very much.

"Raw mangoes are sour. I like them very much. Raw mangoes become ripe. Ripe mangoes are sweet."

"It is fun to play in the rain. We throw water at each other. Then we fight with each other."

The best of primers, even the PSS primers, can only be one of the aids in reading and writing. The stories told by children and the emotionally charged 'key vocabulary' make language come alive in a meaningful and pleasurable way.

3. Additional reading material: such as stories and poems

Once the students are able to read meaningfully, PSS provides each one of them with a xeroxed set of *Anand Vachan* developed by Kusum Adivrekar. The texts emphasise one *matra* at a time. About 8-10 of these texts are currently available. The stories have titles such as *Waa waa waghoba* (Wow! That's great. Tiger!), *Miri ashi kashi shikli* (How come Miri sneezed?), *Hasu hasu apan khup hasu* (Let us laugh, laugh and laugh a lot), *Aidi bail aikena* (The lazy bull does not listen), and *Mandache tond band* (Manda's lips are sealed).

Along with Anand Vachan, other stories and poems are also given to the children as additional reading material. One of the favourites is *U-Tuchia~gosht* (The story of U and Tu). We saw (hat while reading from this stoiy, children hold their giggles in check until the last line. With the sound *'dhumdishi'* in response to *Tu's* query of how she should pass wind, they crack up in peals of laughter! Children want to read this story time and again.

Training teachers

The PSS approach acknowledges the importance of working with teachers. Maxine says: "Of course, in the final analysis no method and no textbook is teacher-proof. One can come across a teacher using the PSS primer to teach her pupils to memorise the sentences in a lesson. Teachers need to have some concept of what reading is and some skill in class management to organise instruction for children at varying levels of mastery. This is attempted through intensive teachers' training."

Training camps for teachers are organised by the ZP, where PSS serves as a resource. A video film on the process of teaching reading is part of the kit that PSS provides teachers.

Reflections

The project started in 1995 in collaboration with the Phaltan Panchayat Samiti (PPS). PPS and PSS jointly administered literacy tests to students of Class 2 from all the 214 ZP schools in 1997. The result showed that even half-way through Class 2 nearly half of the students could not recognise all the characters of the Devanagari script, or read simple words or sentences. The poor performance correlated with the lack of textbooks.

Although the project has been running in government schools for the last eight years in Phaltan, it lacks the sound backing of the education department. The number of schools allowed to participate in the project has varied from 225 to 8, with no clear reason provided. In 2002-2003, the project has been limited to just eight schools - five ZP schools, two schools of Phaltan Municipal Corporation, and one private school (Prabudha Vidya Mandir, also one of the resource centres). It has not been possible to hold teacher training camps regularly, teachers often mix the PSS and Balbharati methods. Though the government officers agree that the three-stage integrated method of reading and writing proposed by PSS is good, there is an unwritten rule that the teachers have to teach the Balbharati method of reading and writing as well. This makes the progress of the project erratic, and its evaluation difficult.

I visited the eight schools at the end of the academic year 2002-2003. Maxine tested the reading abilities of the students at that time. The performance of Prabuddha Vidya Mandir was quite good. The two Nagar Parishad schools from Phaltan city were the worst performing. In comparison, students of the ZP schools in remote areas had picked up better reading skills. One of the reasons for dais is that in far flung areas, all the students go to the ZP school, which is the only school in their locality. As a result, parents and elders of the village are able to exert pressure on the school to perform.

Despite the wavering support from the government, a small group of committed teachers from the PSS schools have come together to train teachers and monitor the project. They are inspired by the unrelenting enthusiasm of Maxine *maushi* as she is known in Phaltan. Maxine firmly believes drat something has to be done for children RIGHT NOW, before it is too late, The PSS project, with all its ups and downs, is a landmark in *the* field of language teaching, and one hopes that it will get the attention and support it deserves from educationists, teachers and policymakers.

6. I CAN READ AND WRITE

Vinalini Mathrani

"I can read. ''So can I.' "I can too." This chorus comes from animated children of Classes 3 and 4 of the Vinobha Bhave Nagar Municipal School, I, Ward Mumbai. It is not a synchronised chorus - perhaps indicative of the space the children have to be different from each other, and progress in reading at different paces. Vidya, a trainer-monitor of the *Balsakhi* Programme says: "In our pre-reading programme test held about a month ago, most of these children could not even recognise all the alphabets; few could recognise sonic alphabets; and still fewer could string the alphabet together to form words."

I watched her class in progress. She asked the children to take out their Marathi reading cards. An enlarged version of the same was hung on the wall. She read out the story and [he children diligently moved their fingers line by line. Once the story was over, she ensured that the children were not imitating or rote learning. "Can you find the word 'pencil'?" The children pointed out the right word. She then asked them to locate a phrase. This was also easy. "Now will somebody read out a sentence?" The flurry of waving hands, flashing eyes and bright smiles indicated an ability to read and a high level of self-confidence. Two boys and one girl read their respective sentences; one child read slowly and deliberately, while the other two raced through. ''Now I need you to find all the *jodakshars* (words which have two alphabets joined). A quick look at the reading card yielded two words, 'pencil and *vastu'*.

The second half of the reading session began; the children took out their alphabet or *barakhadi* charts. Vidya asked for a student volunteer, and told the others to pick out a two-syllable word for him. The volunteer located the two-syllable components on the barakhadi chart. The next word the children chose for him was *mama.* This evoked many giggles as the young volunteer went through the alphabet chart two times instead of simply jabbing his linger twice on the same spot. The group rapidly moved from two-syllable to three-syllable words with older children in this learning activity.

Background

Pratham Mumbai Education Initiative has devised this reading programme. Pratham was instituted in December 1994 to achieve universal primary education in Mumbai. It believes in working in government schools,

and collaborating with the local self-government, i.e., the Brihanmumbai Municipal Corporation (BMC), to institute changes in pedagogical and managerial practices. Pratham interacts with the municipal corporation at all levels - the Education Officer. Superintendents, Beat Officers, head teachers and class teachers. This collaboration is further strengthened as the partnership extends to citizens and corporations. A conscious decision was taken to work on a large scale from the very outset, in the belief that creating small islands of excellence would inhibit replication. The programme in Mumbai was to serve as a model which could be disseminated in other cities of India. Today Pratham has siblings in many other parts of the country.

The three core programmes are: *balwadis* in slums; balsakhis to provide remedial education to academically weak school children; and bridge courses for dropouts. **Over** time, Pratham has expanded its mandate to include a health programme; an outreach programme for children 'at risk', who are not in school; and a continuing education programme for its own staff.

Balsakhi Programme

The Balsakhi Programme emerged in response to evolving field realities. According to Farida Lambay, a founder-trustee, it reflects Pratham's perception of itself as a 'learning organisation, so continuous change is inevitable'. Pratham's survey of the municipal schools revealed that 30 to 40 per cent of children faced most problems with language and mathematics. In 1996, after a year's interaction with the government, resource centres were set up for teachers to exchange ideas. This initiative did not gain momentum. In late 1996, a senior Superintendent and his Beat Officers held a *Gammat Jatra* (funfair) of educational games designed by teachers. Later, another 1,250 schools participated in a large funfair. This enthused the teachers sufficiently to propose a *Gammat Jatra* hour within the weekly lime-table. Unfortunately, the school system did not follow (his up and Pratham did not have sufficient staff to conduct the programme independently.

The problem of low literacy and numeracy levels of children in Classes 3 and 4 suggested that a revolution in language and mathematics was in order. A seven-week programme of concentrated learning of mathematics, *Shatak Zhep,* was proposed after consultation with the Education Officers, Superintendents and Beat Officers. This approach was extended to language through the reading programme. But it was only in 1998, after u spate of

appointments and transfers of Education Officers, dial the notion of remedial study classes got crystallised.

A pilot project was designed for academically weak students of Classes 3 and 4. In October 1998, 60 Pratham organisers worked with 20 children in each of 60 schools. The classes were held both outside and within school hours. The curriculum also acknowledged the children's psyche. Although the children's learning did not improve dramatically, their progress and growing confidence impressed the teachers. Pratham decided to increase the number of classes and the organisers became trainers. Then came the realisation that until all parents are able to support their children in studying, such a programme should be part of the school system.

In November 1998, the Balsakhi Programme was proposed. The Pratham-appointed balsakhi became an integral part of the municipal school system. In the first year, she assisted the municipal teacher by engaging in jobs assigned to her. Her main duty was to manage the class if the teacher was absent. When the teacher was present, she focused on academically weak children and prepared teaching aids. In February 1999, over a thousand balsakhis were appointed. They endeared themselves to the children. The children's attendance rose due to their regular presence and popularity. "The balsakhi is critical to the municipal school system," claimed most of the teachers. By 1999-2000, the Balsakhi Programme gained a clearer focus. Balsakhis got linked to the school's plan of raising achievement levels.

Pratham took the responsibility of providing the balsakhi with teaching-learning material. The results of the reading programme were unprecedented. The most academically backward children, who could not recognise the alphabet on Day 1, were reading fluently by Day 21. Stringent monitoring measures were imposed so that all the children had to be reading within a month. Madhav Chavan, a founder-trustee, stated, "The balsakhi had to give good reasons if any child could not read within 31 days." At the same time, the balsakhis did not always receive lull cooperation from the schools. Teachers would absent themselves for eight to ten days in the month and frequently take their annual leave in December, leaving the balsakhi to manage [he class. The field visit to the Vinobha Bhave Municipal School confirmed this. The class teachers were conspicuous by their absence in the Marathi, Hindi and Urdu medium sections. Eventually, Pratham appointed a helper to assist the balsakhi.

Getting children to read and write

Meera Tendolkar of Pratham explained, "The reading cards closely follow the government school syllabus, to keep the children rooted in the school system. The content covers topics from history, geography and science. According to Farida Lambay, "The government school textbooks are gender sensitive, non-communal and relate to the children's environment.'' For the reading programme, Pratham has shortened the lesson to two pages or two sides of the reading card.

Prior to the reading cards Pratham had developed reader-workbooks to provide the writing component. Rajashri Kabre of Pratham described the use, "The balsakhi reads out the story, the children only flip pages. Then begins the *anopcharik gappa* or informal discussion on the pictures. This hones the children's powers of observation and gives them a macro picture of the story. This goes on for five to six days. Then the workbooks come out. Every alternate page is assigned for writing. These children who cannot read begin writing. The early scribbles evolve into coherent sentences on the last page."

Rajashri adds: "The workbook starts with the first sentence of the story. A month is spent *on* the first sentence. The balsakhi physically cuts up the sentence and the children piece it together like a jigsaw. At this stage, the children cannot read. She then cuts up each word for them to play the jigsaw game again. The children make new words with the alphabets they have come across in the first sentence. A month later, when they approach the second sentence, they can all read and write. They move from the macro to the micro and hack to the macro."

An undulating terrain

March 2002 brought in a new dimension to the Balsakhi Programme. The municipal teachers' unions claimed that the balsakhis were growing in stature arid could ultimately threaten the existence of the qualified teachers. The balsakhi was obliged to move out from the school system and conduct remedial education classes in the community. The original programme continues in only one ward (L) with a special request for researching the impact.

Yet, recognising the success of the reading programme, the Education Officers requested Pratham to train their teachers to run the programme themselves and to extend it to include Classes 1 and 2. Pratham accepted the task of developing the appropriate material. Since January 2003, teachers from 22 wards have begun implementing the 21-day reading programme. A

small writing component is being added based on the notion of *'kutch bhi socho, kuch bhi likho'* (write what you think, using the barakhadi chart).

The teachers have tested the children to assess their abilities prior to the implementation of the programme. In January 2003, it is still too early to assess the impact. The poor attendance of the school teachers could also become a critical factor in effective implementation.

Despite this undulating terrain, Pratham is determined to work with the government school system. The founder-trustees seem prepared for an uneven journey. Though their balsakhis have had to move out of the school, the system seems to concede the need for incorporating elements of that programme into its own. Pratham's ability to forge links with its partners at all levels has stood it in good stead. Personal relations rather than written agreements guided the initial collaboration with the government. ''Given the frequent transfers of government officials, a formal MOU is also important," claim some members of Pratham, with hindsight. ''It may have also helped to develop ties with the teachers' unions." The new turn in the Balsakhi Programme demands a systemic involvement and working with very large numbers. But Pratham remains undaunted by the magnitude of the task. "We have focused on converting the large and complex into small and concrete goals," declared Farida Lambay.

In 2004, Pratham initiated 'Read India Books' to provide low-cost and attractive reading material for children. Books are currently published in Hindi, Marathi, Kannada and English; and they aim to publish in other regional languages as well.

7. LACING THE TEST IN CONTEST

Farida Abdulla Khan

While post-Independence India has seen a phenomenal increase by way of schools and enrolments, a large segment of our population remains illiterate and large numbers of children do not attend school. There are also enormous discrepancies within the system in terms of class, caste, gender and region as far as access to education is concerned. Moreover, the quality of schooling available to *the* large majority of our children is so poor that they either drop out of it altogether or come out of it barely equipped to cope with the competitive arena of higher education.

Among the efforts to improve and reform curricula within the government school system, one of the best known and sustained efforts has been that of Eklavya, a non-governmental organisation in Madhya Pradesh. Growing from an experiment in the 1970s in middle school science (started by Kishore Bharati), known as the Hoshangabad Science Teaching Programme, Eklavya added on middle school social science and primary school programmes. The primary school programme has its origins in the experiences of the middle school science programme. Many of the members of Eklavya felt that children coming out of primary school lacked an understanding of and skills in language and basic concepts of mathematics, making it difficult for them to cope with middle school. The Prathmik Shiksha Karyakram, Prashika, was conceptualised in 1983, as a response to the feeling that there is need for a curriculum in the primary school that is more sensitive to the learner's needs and situation.

Initially there were inquiries into the nature of the linguistic and mathematical abilities in a few rural areas of south Madhya Pradesh. This, along with observations of classrooms, study of prevailing textbooks and shared assumptions regarding the learner, the teacher and the curriculum, resulted in a tentative integrated curriculum (for Class 1) for two government schools in 1986. By 1989, the Madhya Pradesh government allowed Prashika to try out their new programme in 25 schools where the state-designed curriculum was replaced by the Prashika curriculum. Complete curricula for Classes 1-5 were devised between the years 1986 and 1992. At the end of the academic year in 2001, the programme was running in the entire Shahpur Block of the Betul district, comprising of 129 government schools.

Prashika approach

There are several characteristics and strengths which make Prashika a departure from the usual mode of a curriculum. Firstly, the child is recognised as the central figure in *the* teaching-learning process. This child is not an abstraction but is embedded within a social, cultural and physical environment. There is an effort to maintain sensitivity to issues of class, caste, gender and the local conditions. The textbooks and learning materials that were devised made use of local materials and familiar situations so that children would find them meaningful. The local history, geography and culture form an integral part of the content. Although the language used is standard Hindi, it is informal and close to everyday usage.

Re-training teachers and ensuring their involvement in the programmes have been an important part of the whole endeavour and its implementation. During a fortnight-long training in summer and regular monthly meetings, they become sensitive to issues of the child's learning, learning through activities, situating the child in her socio-cultural context, dealing with children's mistakes, etc. They become aware of the socio-political factors that determine the status of language, and the importance of accepting the child's language. Although the Prashika curriculum is more than the texts, classroom activity and teacher-child interactions tend to focus around them. Much thought has therefore been given to the construction of the textbooks so that they can become initiators of activity and involvement both for the teachers and the children. The textbooks from Classes 1-5 form the basis of the curriculum and are tided the *Khushi Khushi* series.

The *Khushi Khushi* textbooks

The Class 1 text is designed primarily for the use of the teacher since children are not expected to deal with texts and text-based learning at this early stage. The idea is to evoke an interest in learning and to familiarise the child with an unfamiliar physical and social space - the classroom, the teacher and a formal mode of knowledge transmission. The text provides guidelines for teachers and encourages them to use the native languages of the children since there is a variety of languages in use in the region. It also includes illustrations, poems, short stories, puzzles and riddles. Teachers are asked to use them to evoke the child's interest and draw them into the activity the text provides. Children are encouraged to play with words and word meanings, to learn to recognise letters and numbers, to start counting and get to understand the physical world around them, and most of all, have fun while doing so and enjoy learning.

For example, Unit 3 of this book shows a picture of a cat lowering a fishing hook into ajar containing seven fish. It is a fine drawing of their outlines and easily recognisable forms. There are several things suggested to the teacher. She may encourage the children to weave a story around the picture. There are suggestions on how the activity can be used for learning other concepts. For example, the children could be asked to count the fish, to examine the differences between the different kinds of fish, to imagine the emotions and intentions of the cat and the fish, and to imagine what is likely to happen and how the story could end. This helps children to familiarise themselves with drawings, with the idea mat different scenarios are possible, that there is no one way of telling a story, etc. It also helps them to learn to

be part of a group, to communicate within a group, to perhaps learn new words and start thinking of numbers as an integral part of the physical world.

All the units in the book try to give children an active role in their learning. What they already know is actively solicited and made the basis of what they will learn. Children are encouraged to participate in and initiate activities, the assumption being that this is the nature of children's learning. The texts constantly remind the teacher to encourage children to speak, discuss, question and find solutions and answers, however inadequate they may be in the eyes of the teacher. This gives the children a chance to articulate their understanding of objects, events and situations and also for the teacher to understand the child's ways of reasoning and understanding.

On another page in the same textbook is a lesson tided. 'What goes where'. It starts with a poem in simple language which pairs a lock and key and couples them with a thread and needle and so on. The setting is a village fair which is familiar to children in these schools. It is followed by illustrations where the child is required to make a functional categorisation of articles of common use, such as a book with a pencil, a *gilli* with a *danda* and so on. Teachers are directed to try different levels of activity with these materials. Picture cards of the objects can be made and the children asked to put them in pairs. Word games can be initiated where children are encouraged to think of other objects that can be paired and to investigate the logic of the pairing. It is also a means of exposing children to simple written words and an initial recognition of letters.

These assumptions about the child and the process of teaching and learning form the basis of the programme right through to Class 5. From Class 2 onwards there is an effort to introduce children to the formal rules of reading, writing and arithmetic, although the means for doing so are not traditionally prescribed. By the end of Class 2, children are familiar with the concepts of multiplication and division but each concept is introduced gradually and through activities that encourage understanding rather than rote learning. Beginning with activities and/or word games, children are made familiar with and exposed to the formal number system and mathematical signs. The order of presentation of various concepts is not strictly hierarchical and teachers are directed to go back and forth with the concepts as well as the lessons, depending on the child's interests, availability of materials and possible activities.

Taking off from the textbook

The textbooks encourage children to use the physical environment, to study it and to actively interact with it. Pebbles, leaves and sticks are used for counting as well as recognising and categorising forms and shapes. Simple activities like observation of the vegetation in and around the school enables children to get acquainted with basic concepts of categorisation in biology. An activity like drawing a map of the school and later the surrounding area introduces children to concepts of space and spatial representation. Stories about sharing and distribution aid in understanding mathematical concepts and social relations.

A chapter in Book 4 entitled, 'One question, many solutions' recounts Chuttki and Mutku's trip to a shop to buy rat poison tablets to get rid of rats in their house. The mother sends them on this errand and reminds them to buy two tablets for each room and four for the courtyard. As the brother and sister reach the shop they start to calculate the number of tablets they need and also the price of the tablets. This then leads to a conversation where they each give different solutions to number problems and the ways in which this is possible. It is an interesting chapter dealing with number transitivity and reversibility, but it remains embedded in a real life situation which is familiar to most children in these schools.

Pictures, puzzles, poems and more

There are several qualities that make the texts attractive and valuable as teaching aids. The first is the abundance of illustrations: and illustrations that depict objects *or* events those are familiar and can be recognised by the children. Illustrations are a winning feature by themselves but are used also to initiate activities that add meaning to the text and the process of learning. There is also an abundance of games, riddles, poems and puzzles *that* are naturally attractive to children at (his stage of development. They arouse the child's curiosity and act as motivational factors for learning. The poems are immensely popular and with or without the teacher's encouragement, children enjoy reciting them and know most of them by heart.

Another feature is the different contexts that introduce and then reinforce an important concept from different perspectives, e.g., a poem, a game, a puzzle and a story that all deal with addition of numbers. Scientific concepts are also introduced within familiar contexts; e.g. the concept of solar energy is explained in a story in which the author relates his experiences of bringing a solar cooker to a village.

Prashika texts include stories from and about people and places in different parts of India and the world. These are a way of introducing new and unfamiliar situations and events in a non-threatening manner.

Children are being given new information in child-friendly ways rather than receiving a documentation of new facts, which is the common procedure in traditional school learning and the existing school curriculum.

Working with the state curriculum

By Class 5, children are introduced to concepts as diverse as governance, the history of neighbouring areas as well as some mention of India's struggle for freedom, map drawing and map reading. They learn about biological concepts such as the digestive system, and physical concepts like energy and heat. The mathematics syllabus covers the four operations and goes on to concepts of decimals, fractions, profit and loss, and measurement of area, volume and length. The areas of knowledge that children are expected to master are not different from what the national level curriculum recommends. The effort, however, is to make this knowledge accessible and interesting while recognising the child's cognitive capacities and level of development, so that what is taught and who is learning become compatible with each other. The aim is to make learning and teaching pleasurable rather than frustrating for both students and teachers, if and when possible.

The Prashika programme is a brave effort by an imaginative and concerned group of individuals. It does not make claims to being the ideal answer to the problems of primary schooling. Being an innovative programme, it has challenged many of the assumptions and beliefs of schooling that teachers and communities adhere to, and often there is resistance from the teachers or even the community. Ongoing teacher workshops and trainings have tried to counter this. The team is actively involved in the programme's implementation and is receptive to feedback from the teachers. As a response to the feedback, revisions and changes take place and are considered important.

The litmus test

I was particularly struck by the effectiveness of the programme in an interaction with a family in the village of Pattauapura. This is a village of potters and the school follows the Prashika curriculum. One evening I was intrigued by the sight of four young children sitting seriously at their books, preparing for their exams by the dim light of lamp. I got talking to them and

was interested in knowing how involved they were in the making of the pots and their knowledge of the techniques. They answered all my questions with ease and seemed to know much more than I expected. When I questioned them about this, one of them opened his Prashika textbook and asked me, "Haven't you seen the chapter in our hook called *Shahpur ke matke?"* He went on to tell me the details of the chapter, with a note of pride. I was amazed by the level of enthusiasm that all four children exhibited in discussing the text. The children were studying in different classes hut had at some time or the other encountered this chapter. They all knew and remembered its details and enjoyed discussing it. There was an interest and an involvement with the text that was heart warming - isn't that what schooling should be about?

8. MULTI GRADE SCHOOLS

Anjali Noronha

A school where children are actively learning, even though there are no textbooks? A one-teacher, one-room school where children learn better than in schools with many classrooms and teachers? A school where the teacher sits with the children on the floor? A school which the village community claims as its own? Hard to believe; but not if one visits Valmiki Vanam, one of the 17 satellite schools set up by the Rural Education Centre of the Krishnamurti Foundation of India. Andhra Pradesh. These schools are ideals translated into reality under ordinary circumstances: the children who study here come from poor Scheduled Caste and Scheduled Tribe villages that form a large part of what the mainstream labels as 'uneducable.'

This is Valmiki Vanam - the first 'satellite school' established at the initiative of the Rishi Valley Rural Education Centre (REG) in 1986. The scent of jasmine, a clutch of greenery, and two large clay horses greet us at the entrance. The school is a simple one-room structure, well-lit with large windows. A remarkable sense of ownership by the community leaves no room for fear of theft. After all, it is they who have donated the land and planted the greenery.

Inside, colourful mobiles and crafts hang from the roof; and there are masks, drawings and collages made by the children. Along one wall are neat shelves with boxes of cards; and on another wall hang four pictorial learning ladders. These are the learning sequences set out for each class, each in a different colour.

The school has one teacher, Venugopal, a local youth who set up the school. Rani is an apprentice teacher here, and teaching as Venugopal is ill today. She is from this area and has also studied in a satellite school. Rani sits on the floor with the 30-odd children in her class. The children sit not in straight rows typical of primary schools, but in small groups, engrossed in what they are doing. They are not silent, but there is no din either. They are free to seek help from one another or the teacher.

Grouping: Children sit in five

Partially teacher assisted

An activity card

- The red border denotes this is for Class 1.

- Animal icons are for language. The monkey denotes it is a word-matching, self-directed activity.

- The number 5 pegs this activity card at the fifth level.

The REG approach

In each of the five groups, children are of mixed ages, from Classes 1-5. 'The group is mainly defined by whether the activity cards children are working on require teacher support, peer assistance or self-learning.

The card that each child works from is coded according to the subject, the activity, the level, and the class. There are 'animal cards' for language, 'bird cards' for maths, and 'insect cards' for environment studies. The colour of the cards is the colour of the learning ladder for that class.

Today in the language class, a partly peer -supported group has five children - two of Class 3, one of Class 2 and two of Class 4. They are working with cards 'Bear 2', 'Bear 6' and 'Rhino 5' of their respective classes. The bear denotes reading stories, the rhino denotes reading and workbook exercises.

At first glance, this system seems very elaborate. It has, in fact, taken a load off the teacher. Each child is able to follow her own progress on the learning ladder, and pick up the next activity card to be done. The activity on the new card may require her to shift her group or interact with the teacher; perhaps it is a teacher-led introductory activity for a new concept. Each child thus moves at her own pace, and the teacher works with groups where she is needed. Sometimes the teacher gathers children together to discuss a jungle

or a market scene, and this feeds into an environment studies activity. Or a group may put up a puppet show. Children have already become independent learners, 'learning to learn' confidently, something not seen in the best of mainstream high schools.

Says Padmanabha Rao, who, along with Rama Rao, has painstakingly facilitated the development of this holistic model of multi-grade learning. "The overall solution to the problem of rural schooling, we were convinced, lay in substituting the idea of schools as isolated institutions with schools as resource centres for the local community." The first such one-teacher school was set up in 1986 in the village Eguvaboyapalle, near Rishi Valley, inhabited primarily by people of the Eoya tribe. After initial scepticism, even resistance, the community gradually accepted the idea, even donating a piece of land for the school. They named it 'Valmiki Vanam' after the sage Valmiki who the Boyas claim was their ancestor.

Dr Radhika Herzberger, Director, REC, envisages the development of the village school as a kind of village commons: a new kind of public space in the village, nurturing and rejuvenating the traditional commons and wastelands that a village has. Education for her is not just making children learn the three 'R's but developing a complete human being rooted in the environs. A curriculum built around issues of the environment could offer a solution to social conflicts of our times.

The satellite schools are known throughout the country for their effective multi-grade curriculum. To substitute a rigidly framed structure with one that balances structure and flexibility, appropriate for the different learning paces of children, did not come easily. The learning ladder, and the colour coded cards that follow the cycle of learning from introduction, reinforcement, remediation, enrichment and evaluation - these evolved over 15 years of hard work. It is not just the multi-grade methodology that is unique about these one-teacher schools. It is also their deep connection with the community and with nature that makes them close to the 'village commons' idea. These wastelands are now the sites for schools: the gardens with medicinal herbs, fruits and grass are shared by the community. In addition to the main school, there is also a round house, like me typical village huts. You could find a group of children, a mothers' meeting, or an adult literacy class held here.

Pedagogy that has inspired change across the country

The well known Nali Kali programme in HD Kote block of Karnataka is inspired by the work of REG. It took off when Mr MN Baig, an education officer, took a group of 12 teachers to Rishi Valley through a UNICEF-sponsored project in 1995. The teachers returned, inspired and determined to do something similar in their own schools. They adapted the single-teacher methodology they saw for schools with more than one teacher, by adopting the idea of vertical grouping. This was like having two or three single-teacher, multi-grade schools within one larger school, with the advantage of rationalising the teacher-student ratio. Guided by the Rishi Valley group, and with freedom to adapt, these teachers wrought a remarkably successful change. They had the courage to do away with textbooks, replacing them with colourful cards.

Based on the cards, different activities in language, maths or environmental studies are initiated. Although the day is roughly divided for the three subjects, there are many activities going on with multiple opportunities for learning. Whether it is word recognition or matching, playing a game of maths, filling the weather chart or discussing village life, the children are engrossed in a peer-supported, teacher-supported or self-learning activity. The absence of whole-class, teacher-led processes, with most children passive, is striking.

The Karnataka government went on to replicate this pedagogy in over 6000 schools. It also incorporated learning's of the Nali Kali experience in the new textbooks.

Satellite schools mentor government schools

In the immediate vicinity of Rishi Valley, it is only recently that government schools have shown an interest. The school at Kandlamadegu seems like a typical government elementary school, yet it is different. A lush garden welcomes us and we see a little round house within the compound. The community developed the garden, and shares its fruits and herbs.

Kandlamadegu is one of the 15 odd elementary schools that have been adopted by the satellite schools, each satellite school acting as a mentor to one of the government schools.

When we enter the school, we find children engrossed in different activities, individually or in groups. There are eighty children on the school rolls, between Classes 1-5 and only four teachers (two are volunteers). Two of the teachers have taken charge of Classes fi and 7, leaving the rest in a multi-grade scenario. Like Valmiki Vanam, all children are actively

involved in learning. Children of Class 4 are sitting in the veranda, each with a library book. Classes 1 and 2 children are in six groups. Each child has her textbook open, as well as a card from which she is working. Interestingly, each child is on a different page in the book and has a different card.

Headmaster Peera Saheb has played a crucial role in organising the school and mobilising the community. Inspired by the satellite schools, he helped adapt the multi-grade system to a government school setting in Classes 1-2: here the cards are pegged to pages of the textbook, as the textbooks have not been done away with.

The reality of multi-grade schooling

Multi-grade schools are an essential part of the schooling reality not only in India hut also in countries like Australia, Sweden and Finland. The single age-grade system has engendered so strong a mindset, we have forgotten that tins idea is not the only or the best way to organise schools. Outside school, children learn in mixed-age groups. The single age-grade system is an idea that spread in the 19th century along with the ideas of production and division of labour of the Industrial Revolution. In the United States of America, the 'death knell of the one room school was sounded' after a visit by the Secretary of the Massachusetts Board of Education, Horace Mann, to Prussia in 1843. Impressed by the schooling system in Prussia, he reported that: "In all places where the numbers are sufficiently large *to* allow it the children are divided according to ages and attainments, and a single teacher has the charge of only a single class... There is no obstacle whatever... to the introduction at once of this mode of dividing and classifying scholars in all our large towns."

The model of mono-grade teaching thus became an ideal, spreading along with ideas of the Universalisation of Education in the late 19th and 20th centuries. It came to dominate the basis of school, class and curriculum organisation. Even though we know that children learn well and are emotionally secure in multi-age groups, we tend to treat these as solutions only for the underprivileged. For over a century the system has labelled one and two teacher schools as 'short of teachers[1], and identified this as a major cause of children's underachievement. This mindset has prevented us from working on ways of organising effective learning in multi-grade situations. However, when curriculum, pedagogy and textbooks are designed for grade-wise school organisation, a single teacher for a mixed age group would be at a terrible disadvantage. The need is to develop a different pedagogical

practice for multi-grade schools; and models like the Rishi Valley satellite schools show the way.

As the demand for Rishi Valley's multi-grade approach grows, the team is gearing itself for training and supporting other groups.

A teacher-resource pack and a teacher-development "ladder' are being refined. Apprentice teachers are in place in the satellite schools. The REG team is also supporting state governments to develop effective multi-grade schools. Karnataka, Tamil Nadu, Kerala, Uttar Pradesh and Assam are some states that have begun to bring in change with the help of REG.

9. OUR LAND OUR LIFE

Deepti Priya Mehrotra

In various parts of India, agriculture is no longer viable. The decay of rural economy is fast converting village life into a nightmare. In the newly formed hill state of Uttaranchal - carved out of the far bigger state of Uttar Pradesh - this scenario is a tragic reality.

It all began in colonial times with the takeover of large chunks of village forests. With an increase in population, village forest area was reduced still further by conversion to cultivated fields, and the remaining forests degenerated. This began a process of all-round environmental degradation so that today there are shortages of food, fodder, fuel and water. Despite its original natural wealth, the land of Uttaranchal has become today a land of poverty.

Large-scale migration is commonplace, with young men, in particular, surging outwards in search of employment opportunities. While most subsistence needs are still met through agricultural and forest produce, cash inflow from those working outside is also essential for survival.

The local economy depends on agriculture, with small landholders - each owning just a few patches of land on the stepped hillsides - cultivating their land using family labour. Yet, agricultural productivity has diminished instead of increasing. Self-sufficiency in food was a fact of life until a couple of generations ago. Today, it seems an impossible dream,

A number of social action groups in this region are attempting the seemingly impossible - they are devising strategies to revitalise the local economy. These groups and individuals are working towards regeneration of

the soil, forests and agriculture of the region. A vision of the village as a viable, positive option underlies their work.

Background and beginnings

One such group is the Uttarakhand Seva Nidhi (USN). Committed to reversing the trend towards a ruthless developmental process, they initiated the environmental education programme in 1987. The programme is designed with the broad objective of village self-sufficiency based on sustainable agriculture and forestry practices. Aptly, the programme is popularly termed 'Our Land Our Life'. This is the generic name of each of the textbooks through which the programme is being implemented at the school level.

Botanist Dr Ganga Prasad Pandey, a part of USN since nearly a decade, explains, "Our understanding of environment is not the superficial one limited to plastic bags, clean air and the like. These are the 'big themes' being supported by international agencies and governments. But they have only a limited relevance in rural areas. Our own understanding of environment is linked to people's livelihood needs. These needs can be satisfied only when there is an understanding of the importance of conserving and appropriately using our natural resources."

Oak trees - and mixed forests - are natural to this region. G. P. Pandey describes oak trees as ideal since they provide excellent fodder and fuel wood, nourish the soil, and generate natural aquifers. The fast-growing pine tree has now replaced oak for commercial timber and resin. But pine trees provide no fodder, little fuel wood, poor compost, and render the soil acidic. Therefore, crop productivity has declined. The entire process can he claims, be reversed. A first step would be to plant oak trees in large numbers.

Geologist Ms Anuradha Pande, who joined the programme some ten years ago, notes, "We bring about an awareness of basic ecological issues by systematically teaching school children. Our course builds up conceptual and practical skills for the children of Classes 6, 7 and 8. The programme is integrated into the curriculum of over 600 schools in Uttaranchal."

Professor Michael G. Jackson, who actually wrote the textbooks, retired from the Pantnagar Agricultural University several years ago. While in service, he worked on developing a model of the Indian village as a viable ecosystem. He is convinced that such a model provides the key to the future of rural life in India. This vision was fostered by Sri Madhava Ashish of Mirtola Ashram, where Professor Jackson lived after his retirement.

Together, they sowed the seeds which have grown into the present-day programme- These seeds took the form of experimental lessons in environmental education, in one school - the Panvanaula Intermediate College.

'I have all along been inspired by the vision of creating a viable future for the Indian village," notes M. G. Jackson. "After I retired, my wife and I moved to the Ashram in Mirtola. I wanted to devote myself to spiritual pursuits. Rut Ashishda persuaded me to take up the writing of lessons and textbooks in environmental education.... The journey has been full of learnings, and it continues to be meaningful. So much so, mat after Ashishda passed away, I moved to Almora - so I could continue to contribute to the programme. This work is for humanity - for the future of life upon earth.'"

Shri Kishan Singh Suyal was Principal of the Intermediate College at Panvanaula - and the first educationist to open the doors to environmental education in 1988. He confesses that originally he was rather sceptical about the whole idea. In fact, he allowed Ashishda and M.G. Jackson to take lessons in environmental education in the middle school, more out of respect for them, than out of any understanding of the programme and its implications. However, observing the interest students took in these lessons, he himself grew interested. He realised that the programme had enormous relevance to the lives of the children of the area. Therefore, over the years he became a committed exponent of environmental education.

From its humble beginnings through cyclostyled lessons in this one school, the programme has come a long way. The headquarters of the USN is in Almora town. From here, the work has now spread out into all the districts of Uttaranchal.

Government support has been crucial in helping the programme develop and expand. In 1987, The Department of Education, Government of India, and the education department of Uttar Pradesh state committed to supporting the USN to develop a separate environmental education course. This followed the National Policy on Education. 1986 which recognised the need for 'integrating environment education in the entire educational processes. The central government continues to provide financial support for designing and monitoring the programme. The Uttar Pradesh state and now Uttaranchal state education departments have whole-heartedly supported the programme from the start. The courses will be extended to all schools in the state, in Classes 6-8.

The programme and its implementation

The course

- *Focuses on the local environment. Global problems are referred to, but always in relation to local problems.*
- *Has many practical exercises, including visits to a 'Study Village', supplemented by theory.*
- *Involves the local community which, after the students themselves, is the target group for the programme. The village is in effect a laboratory, where quantitative studies are made and changes planned,*
- *Traditional knowledge is sought from the village community.*
- *The underlying concepts of the course are' the village ecosystem sustainable ecosystem management; and ecosystem carrying capacity (i.e. human and cattle population supporting capacity).*

For the first time in the country, environmental education is a separate subject, with the same status as language or science, and a committed place in the time table. It has taken up the slot earlier reserved for craft or agriculture - a slot that was being underutilised. The course is designed for five 40-minutc periods, and one 3-hour period each week.

If the environmental education course content is different from the rest of the curriculum, so also is the methodology. The methodology involves much more practical work and community interaction than any other subjects in the present curriculum in the region. In all, 35 practical exercises under themes such as land, water, trees, crops, compost, animals, fodder, firewood, people and village ecosystem are distributed in a graded series of three workbooks, collectively entitled 'Our Land Our Life'. Along with the workbooks, each school is also provided with a set of hand tools, measuring tapes and spring balances to do practical work.

Shri Kesar Singh Mankoti is a down-to-earth teacher, close to the villagers, and respectful of folk wisdom. He has been teaching environmental education to Classes 7 and 8 in Artola Middle School. He finds the practical aspects of the programme particularly significant. Under the programme, each class has identified a 'Study Village'. They regularly visit the study village, and question village elders about the history of agricultural and forestry practices. They also take detailed measurements of fodder, produce, land area, compost production, water sources and quantity, and so on. They estimate the various inputs and outputs that make up the

village ecological system. On this basis, they are equipped to plan real improvements in the forestry and agricultural practices.

Mankoti found that the level of mathematical and measurement required by the EEP can get quite tough for the children. He discovered that some of the concepts just were not getting communicated. For instance, the concept of 'altitude' was difficult for Class 6 children to grasp. The phrase '1000 metres above sea level' naturally made no sense to children who had never in their lives seen the sea, and in fact had always lived at a high altitude!

Mankoti experimented with alternative ways to effectively communicate the concept. In a basin, he filled water, and put various rocks - of different heights. Through this model, he taught them the meaning of altitude, or 'so-many centimetres above the water level'. The children could easily translate this to the notion of 'so-many metres above sea level'!

Children of Garudbanj High School have also been exposed to the programme for several years now. Their principal, Mr. D.S. Negi, is enthusiastic about the benefits. Children, he says, enjoy the subject more than most of their other subjects. Class 8 children confirm this, saying that they particularly like going to villages, and asking for information. Some children say they liked learning how to calculate the area of fields that had irregular shapes; others say they have learnt a lot about water sources. A number of students have found the lesson about Tangsa village exceptionally interesting.

Explains Ramesh of Class 8, "In the lesson on Tangsa village, a group of women get very concerned about the condition of their village. They were facing severe problems because they had to walk miles to fetch firewood, fodder and water. They discussed their problems, and realised they could solve them only if they worked to regenerate the village forests. They formed a Mahila Mangal Dal (women's group) to do this. The Mahila Mangal Dal plants oak trees, and protects the growing forest. They also learn about better methods of composting. As a result, over the next few years their village economy improves significantly''

The children feel that if the women of Tangsa village could take these steps to improve their village life, then something similar is possible elsewhere too. "We too can do it!" says Sundar Singh, voicing the feeling of many of his classmates. He adds drat such action has happened in a village

dose by - Sahkanda village - where the women got together and planted, and protected, oak and other broad-leafed trees.

Environmental revitalisation in this region is intricately bound with improvement in the conditions of women's lives. Women shoulder an enormous burden of labour which gets exacerbated by environmental degradation. This is the reason that ordinary, unlettered women of the region were the first to draw national attention to the disastrous consequences of deforestation. Their action to protect trees gave rise to the Chipko Movement which resulted in a clamping down on tree-cutting in the higher reaches of Uttaranchal. However, this move by itself has proved insufficient. The need of the hour is for a range of measures, including the regeneration of mixed and oak forests, and encouragement of appropriate agricultural methods.

Challenges

"Die prevailing school system has many limitations that pose a problem in implementing the programme - some intractable. For instance, the size of a class can sometimes be as much as 100 children. Parents might disapprove of the programme, as they consider success to be measured by 'moving up and moving out' of the region. Teachers sometimes lack mathematical skills or the conceptual ability to grasp the curriculum. Many are resistant to the philosophy behind environmental education, or disinterested in learning new methodologies of teaching. "We have to keep at it", the USN team notes- ''Most teachers themselves are caught up in the same mindset - the idea that they should leave the village. The race is towards mugging up subject matter in order to do well in exams."

Dr Lalit Pande, Director of the programme notes, wryly - "The children sometimes do not: even know how to read well, leave aside having basic mathematical skills. In fact, in some schools they have learnt mathematics better because of our programme. Parents are happy because their children have improved in maths and science, as a result of learning environmental education!"

Penetration of the market forces in the countryside has created an acute crisis of expectations. Although most migrants from Uttaranchal do not find good jobs, there continues to be a virtual exodus of young people in search of viable employment opportunities. Children dream of going to urban areas in the plains. In the Garudbanj School, all the boys of Classes 7 and 8 said they want to go out and find jobs outside. However, they admit that not

everyone will be able to find a good job in the plains. What will they do then? “Well, then we will return and live here, in the village.” In that case, they say they will definitely be able to use the knowledge they are gaining through the programme, to improve their village economy.

Obviously, the environmental education programme will yield significant results only in the long term; with palpable changes in the local environment - in rural life arid livelihoods. Efforts are also being made to implement the course in Classes 9 and 10. This is envisioned as a crucial stage in the programme, when the students and teacher prepare a land rehabilitation plan for the study village with the help of local residents.

There are still many children, teachers as well as parents who recognise the relevance of the programme. 65-year old Chander Singh of Artola village recalls that in his childhood the forests around were thick. There were many more species of birds and animals. Water sources were available aplenty. He is happy that his grandchildren are learning about village life, and methods to improve agriculture. He would like to see the village economy becoming self-sufficient - as it was, in his own living memory!

As Dr. Lalit Pande says, “We are basically pointing out that the development paradigm in vogue today will not benefit the people in the long run. The environmental education programme is based on an alternative paradigm of development, in which the focus is on people’s basic needs, and effective strategies for fulfilling these.” Clearly, the future is as challenging as the past has been, for those involved with the programme in Uttaranchal. The future of the Indian village is, as USN rightly points out, linked to the potential for regenerating village-based livelihoods.

10. EXPERIMENT IN “APPROPRIATE EDUCATION”

Archana Mehendale

Out-of-school children are often seen as ‘drop outs’ from the educational system and efforts are focused at bringing such children hack into me fold. There are other educators who see this scenario as children’s rejection of the system, and are sceptical about putting children back into dysfunctional and irrelevant schools. The Concerned for Working Children (CWC) based in Karnataka has been one of the first nongovernmental organisations in the country to look at the complexities and interrelationships between child labour and education.

In 1995, CWC brought together a group of 50 rural working children, girls and boys, to find out their views on education. The conviction underlying this exercise was that children have a right to decide the kind of education that should be provided to them. Children voiced what they liked about government schools as well as *Namma Shale,* the CWC-nm education centres. They also shared their vision about their 'Dream School'. It would be a school with activity-based learning that went beyond the prescribed textbooks, and provided an education relevant to their lives.

What children say about school

The government school

"I like.....incentives, scholarships, discipline, examinations and certifications

"I dislike...attitude of teachers towards students, lack of space in the classrooms, schools being far away

CWC- run educational centres,

"I like.....vocational training programme helps us become independent;, gives general knowledge and information about laws, students are treated with respect and dignity, home-like atmosphere :

"I dislike...no strict discipline, no examination, English is not taught, it is boring listen to speeches;

Based on this insightful feedback from children, CWC developed an 'Appropriate Education Programme' (AEP). In 2003, AEP was being implemented in 50 government schools of Karnataka.

Appropriate Education Programme (AEP)

AEP was conceptualised and implemented in 1995 by the rural programme of CWC. *Gramashrama,* with two main objectives, to:

• Strengthen and influence the formal system to make education more appropriate, relevant and accessible to all children, including working children

• Develop an education that would empower children to participate effectively in a democracy.

To do this, CWC began to work with teachers and the educational administration by:

- Developing 'appropriate' learning material
- Developing a new curriculum for 'empowerment'
- Setting up extension schools and *anganwadis* and improving access to education
- Involving children, teachers and parents in the process as a strategy.

Kavita Ratna, Director-Communications, CWC, explains the rationale of the programme: "School improvement through the AEP helps in attracting children to schools in places like Udupi, where the socio-economic indicators are positive. In backward regions like Bellary, improving the quality of school education alone is not enough. Improving school access and taking educational facilities to children by way of extension schools is a necessity, while simultaneously addressing the basic causes which lead to child labour in the first place."

Inspired by Montessori education

With the goal of developing a system of education that would serve the majority and be relevant to a child's life and culture. Gramashrama drew on the expertise of a well known Montessori educator, Ms Amukta Mahapatra. Together with the staff of Gramashrama the team developed a programme that could be integrated within (he existing school curriculum, and which was sensitive to the concerns of teachers.

The principles of Montessori education greatly influenced AEP for several reasons:

- The method is graded for the different developmental stages, ages and needs. Learning is rigorous and children feel they have learnt something everyday.
- The method reflects the spirit of democracy that is important to CWC. Children are not made to feel powerless but have choices. The teacher is not the only resource for learning. Children are helped to be in charge of themselves and their learning. They have the experience of being a member of a collective; and are helped to see, understand and respect differences.

- The programme helps to address the everyday situation of government schools .such as multi-grade learning (children from different ages sit together and work independently or in groups): absenteeism (children can pick up from where they have left and this reduces their chance of missing out); the needs of special groups such as children with disabilities or slow learners are addressed (children can learn at their own pace): children from disadvantaged families get a relevant education (the curriculum draws on their life situations).

The AEP is graded, with teaching aids that enliven learning. Each school is given a set of materials for Mathematics, Kannada and Environmental Studies. The materials used in primary school, Classes 1-5, are similar to those used in Montessori schools. There are pictures and aids to encourage conversation, matching, sorting and sequencing, sandpaper letters for tracing, number rods and cards, static and dynamic decimal systems, addition and subtraction charts, multiplication bead bars, division boards, puzzles, games, stories and much more.

The AEP is, however, different from Montessori education in some ways. For instance, a learning aid may be used for a variety of concepts unlike in the Montessori method. The materials used are also a little smaller since they are for older children, and this saves on both resources and space.

In the classroom

During my visit to Balkur Higher Primary School (Kundapur *taluka,* Udupi district), I found students in Classes 1 and 2 deeply absorbed in their work. Two teachers were making rounds and supervising children as they worked, There was a quiet murmur among the students and they seemed to be unaffected by my presence. They handled the material with ease and confidence. Some of them were correcting themselves or their friends. Lokesh, aged seven years, was counting seeds, putting them in a box next to the appropriate numeral, and correcting himself. Lakshmi was helping her classmates to count up to four digit numbers. In another corner, Ashwini, aged eight years, was doing three digit addition using bead bars. Students moved freely in the class and put things away once their work was over. The teacher circulated among them, attended to what, each one was doing, and helped if they needed it.

One of the teachers told me, “Children enjoy working with these materials. They grasp concepts quickly and do not forget them easily.” “Instead of repeating lessons over and over again, this method is effective

since children learn by doing," added her colleague. The teachers said dial parents are happy to see their children learning rapidly and are enthusiastic about supporting the programme. In Balkur Higher Primary School, a parent who is a carpenter made a weighing balance so that children could learn the concept of heavy and light. Another parent made a set of how and arrows: while another made a post box.

Although the same material is meant for all primary classes, it is not used as frequently in Classes 3-5. This is partly due to logistical reasons, as the material is often stored in Classes 1-2. Some teachers have understood how to use the same material for different ages. A teacher from Balkur Higher Primary School explained: "While younger children are taught to match names with pictures of fruits, older children are drawn into discussions about when these fruits are grown, the type of soil required, nutrients present in fruits, and so on."

Developing curriculum and textbooks

Textbooks and material for the higher primary and secondary classes are also being developed for mass production. This effort is being supported by the National Council of Rural Institutes, set up to promote functional education based on the Gandhian philosophy of *Nai Talim.*

Most of the material is being developed by field activists on subjects that are related to the syllabus but not directly addressed by textbooks-The material is developed with the local Block Resource Centre team of the state education department and is then field tested. Feedback received during field testing may be about the words used (for example, a shell is called *chippu* in Kundapur, while in Bellary students understand it as *kuppechippu,* or how to simplify the language.

A syllabus for children's 'empowerment' is another aspect of AEF that is being developed. Given CWC's long involvement with promoting child participation, this curricular innovation has arisen from their belief chat formal education must empower children to improve their own situation and quality of life, along with that of their communities. The graded syllabus that I saw on my visit to Gramashrama includes topics such as the Convention on the Rights of the Child, child labour, and the importance of educating girls, working of gram panchayats, organising collectives, strategic planning and so forth. The materials have life related experiences and knowledge, and are currently being tried out in CWC's residential vocational training centre at Kundapur, Udupi district.

Involving stakeholders: children, teachers and parents

An important strategy of the AEP is to empower teachers. A qualitative change in the attitude of government school teachers is required if they are to shift from the traditional teacher and syllabus-centred transaction towards a child and process-centred learning. Initially, teachers were hesitant as they were more comfortable carrying out orders from the top, and felt they could do very little to change the existing situation by themselves. They also felt bound by the prescribed syllabus and textbooks. CWC negotiated these concerns diplomatically. Instead of criticising teachers for the state of affairs, the programme listened to their concerns and problems and tried to work around these constraints. Only after mustering support from the teachers did CWC approach the district level educational administration and subsequently the state government, with their plans of working with government schools.

A strong base of work with the local self-governments helped CWC root this programme firmly within the community, and it also strengthened their ease with the government. During the initial period, several gram panchayats pledged their support and endorsed the programme. This made it easier to win the support of parents and teachers. Children belonging to *Bhima Sangha (*a union of, by and for working children in Karnataka, facilitated by CWC) and *Makkala Panchayat* (a village council or parallel government of children, set up jointly by Bhima Sangha and CWC) played a key role in conducting village level appraisals of educational problems laced by the children and how to address them.

Structures to sustain the programme

In June 1995, when the programme was launched, AEP was implemented in Classes 1-2 covering only one school per panchayat. The schools were selected from Kundapur *taluka* where the organisation had been working closely with local panchayats and organising working children since 1989.

About 300 school teachers were trained for a total of 15-17 days: eight to ten days initially, another four days within six months, and a follow-up of three days after a year. The training was experiential - teachers created learner-centred classrooms, prepared Appropriate Education materials, and learn to use them in individual and group activities with children. Besides the teachers, field activists and the staff of CWC were also trained so that they could monitor the implementation of the programme.

By the end of 1995, 22 schools were covered under (he programme: and in 2003. the programme reached out Lo students in Classes 1-5 in 50 government schools across four districts of Karnataka. An education co-ordination committee consisting of the Deputy Director for Public Instruction, Block Education Officers, the Block Resource Centre team, the education coordinator, activists from the CWC, and representatives from the Makkala Panchayat and Bhima Sangha of the area meet periodically and are responsible for supporting and monitoring the programme.

Field activists from CWC visit schools each week. They support teachers by helping them use the AEP materials and methods effectively, and help clarify their doubts. The Makkala Panchayats or the Children's Councils that work in partnership with the local governments have reserved quotas for representatives of working children, school going children and children with disabilities. According to CWC, Makkala Panchayats provide a political space for children to redress their grievances. These children's panchayats have been instrumental in building footbridges so that children can access schools even during the rainy season. They have also persuaded communities to ensure that children do not drop out of schools and migrate to cities for employment.

Extension schools and anganwadis: improving access

Along with improving curriculum, AEP also aims to enhance children's access to school. Extension schools and anganwadis are set up in mofussil areas where there are no government schools, and where children find it difficult to attend schools due to distance or socio-economic conditions. These schools are managed by the local gram panchayats and are staffed by part-time teachers. They operate at times convenient to children. They have been recognised by the Department of Education, Government of Karnataka, as part of the formal system. Children attending them are registered with the nearest formal school and are allowed to take public examinations conducted by the government. In 2003, 11 extension primary schools, 4 extension high schools and 11 extension anganwadis are being run with the help of local panchayats.

Some reflections

Like most innovative programmes, the AEP also has its own set of challenges. Some teachers are reluctant to use AEP material, claiming that government orders require them to follow *Chaitanya,* an activity-based

learning programme of the government. Despite the complementary nature of Appropriate Education and Chaitanya, some teachers seem to resist change as they view the programmes compartmentally. Further. AEP requires additional space for keeping materials and conducting activities, but this is not always available. In Kalligurlde Government Primary School, Classes 1-5 huddle together in one room. The teachers insist on using benches, obliging children to sit in rows, rather than informally in groups for the Appropriate Education Programme.

Despite this, children are happy to be in school and enjoy the activity-based learning. Schools where AEP is implemented are often schools with a hundred per cent enrolment and retention.

11. WORKING WITHIN AND WITHOUT

Kameshwari Jandhyala

For a very long time now we have been trying to cope with what seems an insurmountable problem of large numbers of children outside the school system. With around 100 million children out-of-school, we are still a long way from the commitment to provide education to all children by the 21st century. The problem of large numbers of children outside school has meant that most efforts during the last decade, both by governments and the voluntary sector, have been to assure access to school and enrolment in general. In this endeavour, the MV Foundation occupies a special place for bringing the issue of working and out-of-school children squarely into the public domain, as also for evolving strategies for mainstreaming them into the formal education system.

When the MV Foundation (MVF) started its pioneering work in Ranga Reddy district, Andhra Pradesh, in 1991, the issue of bonded child labour and out-of-school children was just about drawing attention. Andhra Pradesh has some of the highest numbers of child labour in the country. Starting with a focus on bonded child labour, MVF early on recognised that it must work on the larger canvas of preventing children becoming child labour by ensuring that all children have access to education. Consequently, it began to advocate its definition of child labour beyond the restrictive definition of the

Factories' Act and label all children in the 6-14 year age group outside school as child labour.

As Shantha Sinha, the secretary of MVF has often said, 'School is the place for a child'. Challenging the more conventional explanations of poverty being the root cause for children not going to school, MVF has worked with the belief that all parents, including poor parents, want to educate their children. In the absence of a responsive education system, children are bound to remain outside it. The first task then was to bring children to school. Is the school functioning effectively, is the curriculum relevant, do children come out of school with learning abilities enhanced - these were seen as issues that would somehow get addressed, in an organic manner, if communities are mobilised and children enrolled in schools.

A social movement for education

MVF, like other **NGOs** had experimented with non-formal education (NFE) as ail option for working children. Fairly early on it abandoned this strategy with a realisation that NFE was itself contributing to the continuance of child labour. Being committed to formal education as the vehicle for eliminating the problem of child labour, the formal school became an institution around which MVFs strategies are centred. The government school is often the only option for poor children. Therefore, MVF focused on the government school as the hub around which its interventions are designed. There is an ideological stand behind this as well that the government has the responsibility of ensuring and providing elementary education in the country.

Social mobilisation for education has been perfected us an art by MVF. The range of stakeholders brought in is wide-ranging - from parents, the village community at large, elected representatives, employers of children, and most importantly, teachers and education officials. In this entire dramatis personae, its village youth, (read young men) have been very effectively mobilised into what the organisation calls the 'education activists'. As the girl child education issue gained in prominence, MVF has had to confront the lack of a gender focus in its work, even in terms of representation at the level of personnel. Gradually the education activists' tribe has extended to include young women as well.

Resides exhortations on the rights of the child, social responsibilities, and how education is a powerful tool to overcome social exclusion and economic marginalisation, the problem was presented in real terms, in a nuts and bolts

fashion, with actual numbers of out-of-school children within the village. This had a tremendous impact, as the problem from being 'vaguely elsewhere' became the community's own problem, rooted in their social reality. Another related issue which has often baffled many is how were families convinced to give up a dependence on the supplementary income brought in by the children. The answers to this are not crystal clear. Discussions centred on how child labour is depressing adult wages, and most importantly, appealing to the parents' desire for a better future for their children. This was in the early years. Gradually, a commitment to children's education began to emerge as a societal norm in the villages that MVF was working in. Education activists play an important role, and being from within the communities, they are able to keep the discussion and dialogue alive. It also required that the perspectives and skills of education activists and other volunteers needed continuous building; and a sense of being involved in a social movement nurtured.

Getting ready for school: the bridge curriculum

Access to school has often been interpreted as opening a school within easy reach of a child. For MVF, the issue of access took on a whole new dimension. Is physical access to school enough? Or if access is to be real, does one not need a strategy to bridge the yawning gap between the lived experience of the children and the abilities required to be able to enter the formal system with some degree of confidence? It is as an answer to this that MVF has come up with the concept of a bridge curriculum transacted in a bridge camp. As MVF was often trying to bring first generation older children to schools, the bridge course served as an intermediary step before the child joined the formal stream. These bridge courses are offered in long-term residential camps. As a strategy, residential camps have been the subject of debate, being viewed as an expensive model.

MVF argues that unless children are taken away from their own environment, the pressures of being pushed back into work are too strong to resist. If the child is away, the family will evolve its own coping mechanisms to deal with responsibilities that had been shouldered by the child, either in terms of work or income. The residential camp also serves the purpose of building the self-confidence of the child, and introducing the child to the world of formal education. While children bring in a wealth of experience, dealing with alphabets, words, numeracy and textbooks in a structured manner can be a daunting and alienating process. For the child,

the camp is often an experience in childhood, carefree and joyful, without the burdens of work or the need to earn.

After a year in the camp, the children are moved to the vast network of social welfare hostels set up by the government. For long, this huge infrastructure had been underutilised, often seen as beyond (he reach of those it was intended for. MVF made these hostels serve the needs of the large numbers of children who graduated out of its camps. These children are often enrolled in schools attached to or near the hostels.

Putting supportive mechanisms in place

One of the policy changes that MVF spearheaded was to bring in the concept of rolling enrolment through the academic year. Essentially this was advocated to ensure that the momentum gained in preparing a child and her family to send her to school is not lost by constraints of rigid periods for enrolment. The success of social mobilisation began to be felt with an increase in enrolments in government schools. This in turn exacerbated the pressures on the schools. Lack of space and lack of teachers became problems that threatened to thwart the successes of mobilisation of the communities.

Social mobilisation now took another turn focusing on the proactive role of communities to make the schools equipped to meet the growing demand for education. Recognising that government responses to this demand may be constrained by resources, MVF encouraged the communities to contribute to building additional school space and also to meet the costs of a para teacher selected from within the communities. The para teacher was to play several roles - support the teachers by handling lower classes, be a link between the community and the school, and provide emotional and academic support to older children enrolled in school. The para teacher concept has been widely accepted across the country as an immediate way of maintaining adequate pupil-teacher ratios. Of course, the issue of the lower qualifications of these para teachers and the implications for the child's learning remain.

Reorganising the classroom

For many of us who have followed MVF closely and have been impressed by its mobilisation abilities, there has always been a sense of concern that the cycle of children dropping out of school and joining the ranks of 'child labour' - using MVF's own definition - would be almost inevitable if the

classrooms not a stimulating, challenging and wonderful experience for children. This is all the more crucial in MVF's own project areas where mobilisation has been very successful, with just a handful of children in the village still remaining out of school.

MVF has for long argued that issues of quality education take us beyond the classroom into the community, and in fact, into the wider social environment. For most of the last decade its efforts have been on social mobilisation, bringing children into school, and co-opting teachers into this effort. But success has brought its own compulsions. With large numbers of children in school, the organisation has been compelled to look closely at classroom processes, children's learning, and achievements. The biggest push in this direction has come from the parents themselves, who voiced concerns that while they have fulfilled their responsibility of sending their children to school, the institution was not delivering its responsibilities. Why are children not able to read or write? What is school if it cannot assure at least this minimum learning?

Unlike mobilisation which can be a heady experience for everyone involved, attempting to improve classroom processes and focus on children's learning can be a trying and taxing effort. Though MVF sees its strengths primarily in social mobilisation, it was in a sense compelled to look at learning issues. As the organisation was grappling with this, it benefited from the fact that DPEP (District Primary Education Programme) at this juncture was also investigating the issue of learning achievement and levels. Around this time, DPEP in Andhra Pradesh was recognising that mere enrolment without effective teaching-learning processes is a counter-productive exercise.

A pilot study of assessments of learning levels in Chittoor district was revealing and disturbing. *Over 60 per cent children in class 5 did not achieve class one competencies!* Out of this emerged in 2001 a pilot project called the 'Learning Guarantee Programme'. When MVF did a similar rapid assessment in some select schools in its project area, the results were equally disturbing. Only 20 per cent of children in Class 5 had gained competencies of Class 2 and above.

The Learning Guarantee Programme

The Learning Guarantee Programme was launched as a pilot in two areas: one initiative by MVF in Shankarpalli mandal, and the other in Bommalaramaram mandal in Nalgonda district, where the programme runs

directly through government schools. This pilot was actively supervised and supported by consultants from the Technical Support Group of DPEP. In 2002, MVF has expanded the programme to around 200 schools involving about 20,000 children.

The objectives of the programme are to enable children to read and write correctly; undertake four fundamental mathematical operations - addition, subtraction, multiplication and division; enable children to perform problems on number concepts, and solve verbal problems.

The idea is to set aside for some time the traditional classroom approach till the children have acquired their requisite competencies. Children of Classes 3 to 5 are grouped based on their abilities. Classes 1 and 2 are clubbed together. This means that older children in higher classes have to sit for some time with children of the lower classes. The morning session focuses on language, while maths is taught in the afternoon session.

Teachers set aside the prescribed textbooks and focus on encouraging children to express themselves through story telling, discussing their likes and dislikes, and writing about incidents. Local songs and rhymes that children are familiar with become the medium to encourage participation of all children. Language skills are built up through simple words familiar to children, to more complex words and sentences, to reading a textbook.

As with residential camps, older children rapidly picked up their competencies and moved from lower to higher learning groups. This whole approach of groupings based on competencies is continued for a period ranging from 4-6 months, after which children are back to their respective classes.

Reportedly, this approach both in the MVF area as well as in Nalgonda district has been very successful. The success of this strategy is not surprising: increased and focused teaching time, tailoring teaching to the child's needs, and creating an environment wherein the child and parents are convinced that the child will progress and learn in schools, and most importantly, teachers owning responsibility for enhancing learning competencies.

This pilot project was taken to scale in 2003 by the government as a major 45-day quality improvement programme across the state. In the absence of an independent evaluation of these processes both in the MVF project area and elsewhere, it would be difficult to arrive at a conclusion on the sustainability and efficacy of this process. Nevertheless, the focus on quality education in terms of learning levels is a welcome and necessary change.

Some reflections

There are many lessons to be learnt from the MVF experience. Clarity of focus and objectives enabled the organisation to build a wide consensus on the issue of child labour. Unlike other efforts, MVF demonstrates the possibility of making the formal system respond lo larger social issues. This in a sense stems from the organisation's conviction that it cannot supplant the reach or scale of the government, especially in elementary education. By privileging the school and the teacher, MVF has restored a sense of dignity to the 'often vilified' school teacher, and brought a sense of mission to the teaching community.

Over the last few years, the MVF reach has gone across the length and breadth of the country. The MVF strategy of effective social mobilisation and educational access guaranteed through strong bridging mechanisms has been adopted by several NGO's, and most importantly by the state education department, as a means of universalising elementary education. The state has adopted the definition of child labour to include all children who are out of school. It has rejected non-formal education as a means of improving access. The focus is on full-time schooling. It has also adopted the short-term and long-term camps as a mode of mainstreaming children. In order to address the adverse teacher-pupil ratios in several schools as a result of improved enrolment, the government has accepted the idea of para teachers, locally recruited, to provide an additional teaching hand.

MVF is a resource for agencies like the District Primary Education Programme and the state education department. The Lok Jumbish programme in Rajasthan, DPEP in Uttar Pradesh, and Pratham in Mumbai have drawn heavily on the MVF experience to address issues of working children.

It can be disquietening to see the enthusiasm with which state governments have adopted the social mobilisation and bridge camp strategies of MVF, as they showcase quantitative successes in terms of enrolment. The almost negligible attention to learning outcomes could result in yet another generation not successfully completing elementary education. We have no clear picture of the numbers of children dropping out because nothing happens in school.

Though MVF has persistently maintained that social mobilisation is a critical first step in ensuring universalisation of elementary education, its implicit strategy of seeing social mobilisation and quality of teaching and

learning processes as successive stages needs to be re-examined and revisited. Given that schooling for children is emerging as a societal norm, more evident in some parts of the country, it is imperative that these be addressed as concurrent processes, mutually strengthening each other. It may be useful to focus the lens on how to merge two seemingly parallel processes - mobilisation and learning outcomes. Are they not two sides of the same coin?

12. MOBILIZING THE COMMUNITY FOR EDUCATION

Padma M. Sarangapani

It is now commonplace to hear talk of mobilising communities to take an active role in education, and to ensure that the government schools which their children attend function, so that their children learn. We occasionally hear of communities giving land for the school to be built, or painting the school. We hope to see the day when teachers take their jobs more seriously, out of a sense of accountability to the community which is empowered to pull them up if they do not do their job, or if they do not do it well. This sounds like a possible proposition. It even tempts us as perhaps the only way to get dysfunctional government schools working again. The experiences of MAYA, a Bangalore-based non-governmental organisation, help us understand the potential and the limits of this new concept.

MAYA came into existence out of a concern for children who were working in urban areas, under exploitative conditions. A little over five years ago, in search of a solution to stem the entry of children into employment, MAYA felt, as many do that if only these children were in school, they would not be labouring as rag pickers, garage apprentices, hotel cleaners, or looking after siblings at home. It was with the aim of getting children into schools, and out of labour, that MAYA entered a few slums in Bangalore city.

When you enter one of the slums in which MAYA is working, you are struck by the density of population and the poor civic amenities. A lot of people are in the narrow *galis* - old and young, men and women. The houses are closely packed, from hovels to newly constructed three-floor buildings. The drains are usually open, and when there is a heavy downpour, roofs leak and the sewer water floods the homes. You are almost overwhelmed by the sights and smells that surround you. There is activity all around and a variety of people, migrants from different places, and in different socio-economic

states. Many children work; some have been apprenticed by their parents in garages, so that they can learn some skills for future employment. Some help in family-based work like *agarbathi-making.* Others, like rag pickers, are self-employed. Some children loiter around, and some also go to school.

A member of MAYA felt that the architecture of the slum breeds a culture with many distractions, disorder and confusion, and this pervades children's lives. Children grow up hardly having any interaction with their parents, spending a lot of time in their peer group, independent and self-confident. Even a three-year-old may fend himself against the attack of a ten-year-old, rather than seek out adults who will intervene on his/her behalf.

The first strategy: non-formal education

MAYA strategise that the first step towards getting all children into school would be to get to know them informally and persuade them to join a short non-formal education (NFE) programme. They hoped that this would serve as a 'bridge course', through which the children and their parents would become interested in the possibility of going to school. The NFE centre would socialise children, provide them with some skills, and facilitate their admission to school. The story of how this idea was implemented and the course of activities it generated were told to me by some of the active members of MAYA. It was full of insights into the difficulties and the challenges with which the urban poor are faced in sending their children to school, and the role that an NGO can play, in trying to catalyse and support the education of poor children.

It was relatively easy to meet and get the rag picker children to attend the NFE centre for two hours everyday. These children, used to roaming around and being on their own, needed special attention to motivate them to spend time in one place and focus on tasks. For children who were apprenticed at garages, the parents had to be met and persuaded to withdraw their children from work and send them to the NFE centre (and later to school). This was not a simple, 'rational' exercise. MAYA staff had to spend time and help them decide to make these choices; it often involved working through the mother or the father, whoever was more amenable.

The children seemed to enjoy the NFE classes which included a lot of activities and games. But later, when they were ready to join the school, they discovered the school was not ready for them in any way! It took the children no time to find out that school, as it was, was not a very interesting way of spending time - it was boring, monotonous and meaningless. They

were not learning much, and it was at the expense of their self-respect and self-confidence. Many of their parents too did not seem ready. Sending a child to school regularly implies that parents must maintain a little discipline to attend lo the child's basic needs - to provide food on time, clothing, and to ensure that children do not play truant. It was not that these parents could not afford to feed or clothe the child but coordinating and planning for these activities seemed to be beyond the ken of many parents. One of MAYA's staff recalls how she watched a child rummage through a trunk of clothes for something she could wear to school, and then give up; the five dresses, which were of the right size, either were unwashed or did not have any buttons, etc. It also seemed that the parent-child interactions were not enough. Simply reminding or instructing a child to go to school, amidst a host of other activities, did not seem to convince the child that she must heed this dictate; in any case school was boring and not welcoming. MAYA realised that mobilising could not end with persuading parents to send their child to school. It had to he followed with more interactions and monitoring to persuade the family to create a few routines that will support the school-going child. MAYA members also observed that in a few families, particularly Muslim families, there was an interesting difference. They felt that once they had interacted with these families to help them decide to send their child to school, there was no need for follow-up to ensure support for the child. These families were exceptions.

Second strategy: making government schools function

It also seemed that unless one intervenes in the school to improve its functioning and quality, it would be meaningless to tell children and parents that school is worth their while. People from MAYA met the teachers and also organised a few parent-teacher meetings. But these meetings were unproductive. It was very difficult to get parents to come (mostly mothers, as fathers were usually not available). When they did come, they did not seem to voice any opinion. Teachers lectured them on upbringing and character; they listened and went home. MAYA staff felt that there was neither any continuity, nor qualitative improvement in the discussions, even after three or four meetings! The parents did not seem ready for an engagement with the school institution. And the teachers seemed totally apathetic to the efforts being made. It was during this time that MAYA felt that perhaps (he solution lies in creating within the slum community a group that is educated and empowered to think about children's needs, to effectively voice opinions and lobby to make the school function. They built

on the concept of 'self-help groups' (typically small savings and credit groups) and catalysed the creation *of mahila sanghas women's* groups. "These groups were expected to work on several issues of betterment of the slum but, most importantly, education of the children, not necessarily their own.

Everyone at MAYA feels that the mahila sanghas have taken off. The savings system works and women realise its benefits. Regarding issues of slum betterment, there has been an interest in attending to the improvement of civic amenities, disposal of garbage, drainage, etc. Women are confident and have approached various government officials to attend to matters of concern to the slum. A leadership is emerging. But the focus on children and issues of education has not come about naturally. MAYA staff, who are present to facilitate the meetings of the sanghas, have often had to deliberately build this dimension into the discourse of the sanghas and all their agendas. This was how the idea of starting crèches (or pre-schools) took shape. Following the success of the first crèche, where parents paid twenty rupees per month for the service, this seems to have taken off. The sangha women identify a teacher who is then trained by MAYA. They, along with the children's parents collect and make materials for the crèche - like alphabet and number charts and stuffed toys. The idea of paying for such a service seems to be gaining acceptance.

But the involvement with the formal schools in the slum area, and ability to influence them has been very limited. During the last three years, with and through the sanghas, MAYA has tried to promote the idea that not only do parents have rights vis-à-vis the school, but that they must also take responsibility for the school. The sanghas have organised workshops where parents come and make educational materials to give the school. In many of the schools in the area, one can see their toys and alphabet charts decorating the classroom walls and ceilings. They organise celebrations of teachers' day, give teachers flowers and honour them. They have raised money to paint the blackboards and in some cases have met corporators of the area to get them to attend to the school building. When the sangha members visit the schools, they are acknowledged by the teachers. There is a feeling that the school teachers speak with the parents of the children with a little more respect. However there seems to be absolutely no other positive response from either the teachers or the 'system'; only a continued apathy and maintenance of a status quo. From both the members of MAYA and the mahila sangha, whom I met, I could sense a palpable disappointment, almost a cynicism, about the government schools, especially the teachers, and the

possibility of influencing any change for the better. It seems mat the teachers' overall attitude towards the slum dwellers has not actually changed. When the slum dwellers offered to go with the local teachers to raise funds, the offer was rejected, saying dial this may get the teachers into trouble. Teachers have shown no inclination to join MAYA when they conduct their annual enrolment campaigns in the area.

Urban slum community

Through the mahila sanghas MAYA has nurtured an articulate and motivated leadership dial has gained a voice, and feels the need to speak on behalf of the entire community of people in the slum. We can appreciate the significance of this when we remember dial the urban slum is not really like a village community where people share a long history of culture and social relationships. The people in the slum only share the locality - the sense of 'community' has been created. Yet it seems that when these women speak, they are not really heard. They seem to have no leverage to influence, leave alone to control, and the schools in the area. This raises the question of why they are not perceived, by the school teachers and the officials, as representatives of the community to whom they should be answerable. Is it that they do not regard the mahila sanghas as 'legitimate' representatives, or as having clout? Is there a gender dimension: would their response be different if there were men in the sangha? Would it he different if, instead of a self-organised sangha, the teachers were interacting with elected representatives of the area, or with an association of parents? **Or** is it that the government school system, including its teachers, has no sense of any moral responsibility to the poor, whether they are articulate or silent? It is this last concern that raises more questions for me about this model, and the expectation that poor 'communities' will be able to pull themselves, and the government schools, up by their own boot-straps. Can there be any such single panacea for the government schooling system, which until now has failed to deliver?

By mobilising the community through mahila sanghas, MAYA has raised expectations where earlier there were none, and there is a sense of responsibility towards this situation. But for now, neither members of MAYA nor the mahila sanghas have any new ideas on what one can do. The community has suggested that they should extend the pre-schools and add Classes 1 and 2. But MAYA is not sure if it wants to get into this. This sentiment itself suggests the complexity of the involvement in the community for any **NGO.** Obviously, although the mahila sanghas are

community-based, yet MAYA feels and takes a responsibility for their programmes and decisions. Since the new academic sessions, MAYA has begun an experimental programme of conducting life skills training with Class 5 children of some of these schools. Child Development Centres continue to function in the evenings to give additional support to children who are in schools, or they offer it in the form of NFE to those who are not. More 'bridge course" programmes are being planned, and the yearly enrolment drives continue. When it comes to admitting children to school, MAYA provides the parents with information about all the schools in the vicinity, both government and private. At the time of admissions, they are there, in all the schools, both private and government, to help parents. Improving the functioning and quality of the government school still evades them. But there is no doubt that in several small but important ways, they support the educational needs of the slums in winch they work.

13. EXPERIMENTS IN JAHANGIRPURI

Padma M. Sarangapani

Most university departments of education are notoriously aloof from the realities of schooling, particularly government schooling for the poor. Apart from providing their own students with a little practice teaching in schools, they rarely get involved in addressing problems of school education. The creation of the Maulana Azad Centre for Elementary and Social Education in the Department of Education of the University of Delhi signalled a deliberate attempt to break out of this mould. One focus area that developed as a consequence of this was the professional development of elementary school teachers. A second focus area was to forge direct links with, and work for, the educational needs of underprivileged groups. A few of the department's faculty began exploring what kind of role a university department of education can play, in the large slum-like locality called Jahangirpuri.

Jahangirpuri, located in the northern part of the city, was never meant to be a slum. It was created by the Delhi municipality to meet the housing requirements of the city's poor. It was planned in about 20 blocks, with schools and primary health care centres, and even a couple of cinema halls. Today these cement and brick facilities stand amid squalid shacks that shelter the lives and livelihoods of an ever-growing migrant population. The overall air of grim neglect is typical of a slum.

Research and testing are well established areas of expertise in the university, so it is not surprising that the initial interactions of the Department of Education in Jahangirpuri took the form of a child labour study, preparing diagnostic tests to analyse students' achievements and learning problems. But soon after, as the idea of systematic work took shape, 'community' became the focus. Drs Anil Sadgopal, Janaki Rajan and Najma Siddiqui conceptualised the project in the form of an intervention with a high degree of activism. As the project grew, the university faculty was supported by a team of research assistants and field workers. Initially, time spent in visiting the locality and sitting around chatting with women about the local schools made it clear that the Jahangirpuri scenario was quite complex. The people living here represented many different groups, with different socio-economic and educational levels. They also did not interact with each other, but in fact, often had only stereotyped opinions of other groups. Several **NGOs,** both large and small local organisations, worked on different issues in the slums and many ran non-formal centres for children.

Several of the parents articulated passionately about the problems they perceived of teacher absenteeism, of neglect of their children and also the poor quality of the teaching-learning process. Even the illiterate among them had figured out that if any child, after two years of attending school, is unable to write cither the alphabets or even her name, then the quality of education is suspect. Being poor, they were quite used to routine neglect and disinterest from state institutions, of which the school is one. But they were far from being complacent and apathetic about this situation. Rather, they seemed eager to have someone who could provide them with a channel to have their voices heard by school officialdom. They seemed to feel that non-formal education centres, even though they were better run and provided materials and food, were not getting them anywhere. They were interested in benefits that schooling can give children, and seemed willing to play an active role in ensuring this.

The project, as it unfolded over the period from 1993 until 2000, has many features. Its high points* periods of quiet activity and of stagnation, are as complex and contradictory as the wide range of people involved in it, to varying degrees, over the years. Talking to some of them, I was struck, simultaneously by the enormous energy and excitement that accompanied the work, and also by the lack of connectedness of each activity with those of other people, and also with what took place before and after. It was not as though there was a larger script within which the project unfolded. Rather, as people and groups got involved, they brought in their own specific

strengths and conceived possibilities and ideas. These activities became a part of the project, with the overall objective of synergising school effectiveness through community participation. What is presented here are a few exciting events, a few bold ideas incompletely realised, one story of quiet persistence, and a few questions.

Some exciting events

Every one remembers with much enthusiasm the *two* day workshop held in 1995, attended by community members, school teachers, administrators from the Municipal Corporation of Delhi (MCD), **NGO's** and educationists. Each *of* these stakeholders, when spoken with independently, pointed fingers at the other. Through this workshop, the attempt was to get them to talk to and hear one another. The event was held in one of the schools in Jahangirpuri. The first day seemed to be headed for a disaster as parents and teachers accused each other of gross neglect and even ill intentions. Many parents abused the teachers whom they knew to be unfairly prejudiced against their children. When the teachers arrived the next day, they seemed unwilling to continue with this meeting where they seemed to have been turned into villains. Imagine their surprise when the very parents, who had abused them, now apologised for their harsh words, and spoke instead of cooperating with them. One mother said, after returning home, her husband and she discussed their child's poor school performance, and admitted to themselves, that their own home habits made it difficult for the child to study. They resolved not to watch TV till late at night, which they realised, was distracting their child and making him lose sleep. No wonder the teacher complained that their child napped and was inattentive!

This was a turning point; the teachers and parents suggested many ways by which they could mutually ensure that the children come to school regularly. It surprised them that many solutions could be found, provided that both teachers and parents attended to what seemed like mere minor matters of detail. Not only the parents, even other residents of Jahangirpuri were very enthused by this novel workshop. The vendor who stood outside the school selling peanuts and sweets to children assured the group that as he is outside the school all day, he can keep an eye on the teachers and report those who come late or absent themselves. Reluctantly, the teachers and school principal also agreed to the possibility that the parents could come in and inspect the classes and school records. Each school would have a register for the purpose and these parent-inspectors would record their observations in it. Taking off from this experience, recently the State

Council for Educational Research and Training (SCERT), under Dr Janaki Rajan who was a part of the Jahangirpuri school project, has made it possible for local residents to form themselves into 'School Watch Committees' and officially inspect and report on the condition and working of government schools in their area.

For some time after this workshop, there was an attempt to keep the community involved and informed about activities being undertaken to improve the quality of schooling. When a science teaching workshop was held at the university, some of the parents attended it. A few years later, a large second such 'schools and community' workshop was held. Parents who had attended the first workshop asked for a follow-up. But there was little systematic work to report or show.

Another event of high excitement was the *Dakhila Abhiyan* (enrolment drive) which was held in August 1997. Schools in poor areas often frustrate the attempts of parents in having the names of their children registered in the school rolls. Responding to this, the Jahangirpuri Schools Project organised an event to compel all schools in the area, and the MCD, to take note of and respond to this situation. Dr Anil Sadgopal recalls being inspired by Shankar Guha Niyogi's 'protest as celebration'. On the day and time chosen for the event, in every block of the locality, a march was organised leading up to the school. After songs, dances, streamers and street plays, each school principal was formally and respectfully given a list of all the names of children who were to be entered on the school rolls. This massive mobilisation forced the MCD to take note and respond. It ordered that all the children be admitted; subsequently it also changed the convoluted admission procedures.

A few bold ideas

The question of relevance of the mainstream school curriculum and the contents of the textbooks came up in several ways in the project. Two activities in the project were a direct response to this: *Hunar Khoj* (talent search) was taken up by the student-teachers of the District Institute of Education and Training (DIET). Keshavpuram. As future teachers of government schools, these students were asked to survey the area and find out all the resources and skills that exist in the Jahangirpuri communities. Potentially such a detailed 'resource mapping' would enable teachers both to know the local community that is served by the school, not only as parents, hut also as skilled and knowledgeable people. They could take their assistance to maintain the school, or prepare teaching aids, etc. It seemed as

though local knowledge itself could become a part of the school curriculum. One of the trained historians of Delhi University began an effort to document the local history of Jahangirpuri and its residents. Potentially the availability of such written texts would provide the residents with the opportunity to engage reflectively with their own identities as individuals and as a community, and also within their social situation.

The *Sanjha Manch* came into being as a forum, where all **NGOs** and local residents of Jahangirpuri could meet regularly to discuss education issues. Participants were not paid for their attendance, nor was there any external funding. This was a forum that would try to promote the discussion of ideas and issues, without any other motive than mutual interest and concern. It also seemed to have the potential to provide a common meeting ground to harness the energy of youth in the community. Summer classes and evening classes to coach students were tried out but not being consistent, they did not make a difference. All these are ideas with much potential and suggest areas of community involvement in education, other than the standard ones of enrolment, infrastructure and teacher absenteeism.

Quiet persistence

There is also within the story of the project a smaller one of a social activist: Chaya is herself a resident of Seemapuri which is a resettlement colony across the Jamuna. She worked in the project alongside people from the university. She candidly observes differences in the interactions of the Jahangirpuri residents with members of the university and with herself. The former, along with their humility and willingness to undertake direct grassroots work, still seemed to be most effective in their ability to access and influence people who matter higher-up in the system. She, on the other hand, seemed to provide community members with the means to engage with the local school officialdom, the principals and teachers. When petty events occurred, such as fights or love letters hidden in note books, by blowing them out of proportion, the teachers 'proved' to themselves and the parents that the children of the poor lack moral character and are uneducable. She has been able to intervene successfully by counselling and ensuring that the various parries talk directly to each other rather than through any mediator. She feels that 'empowering' the community enables them to convert their anger and frustration into systematic perseverance and willingness to dialogue. When others take up the battle on their behalf, as for example well-meaning **NGOs,** the net effect is not empowering, but in fact seems to work in an opposite way and creates more dependence. She has

learnt to appreciate the importance, not of the battles that have been won, but the growing ability and willingness of the local people to take on and respond to the injustice and harassment that others face. They seem to be moving from a 'parents group' towards being a 'community'.

A few questions

As I talked to various people who had been involved with the project at different points of time, I gathered from each, a highly personalised account and interpretation of the Jahangirpuri School Project experience. This suggests not only the lack of a strong over-arching frame but also a low level of engagement with the earlier work. Jahangirpuri seemed to be more a common site for activity rather than an integrated project. Perhaps for the same reason, many of the activities were short-lived. Not only were they not built upon by future ones, but also, if interest petered out or people left, the activity ceased.

Many of the contradictions and periods of stagnation have come about because of trying to gear a university department to the level of activism, or sustained work in the community, that the intervention obviously depended upon. The numerous sub-projects of small groups of individuals made it possible for their individual creativity to break new ground. But it also made it very dependent on their energy, enthusiasm and commitment for pace and direction, and most importantly, for the activity to reach a logical conclusion rather than simply peter out. Keeping a sustained connection with the field was far more time and energy consuming, and far less glamorous, than many of the participants had bargained for.

The activities depended to a large extent on field workers who were young and not prepared for working with the community. They were enthusiastic about planning and organising big events but less so when it came to matters of daily work with either school children, or teachers, or parents, which were all less dramatic and required far more self-discipline. Sometimes it seemed that the project's department base was more akin to an NGO, not fully feeding back into or utilising the university location. The incomplete documentation also meant that lessons from this project exist only in personal biographies that can only become a part of the oral mythology of individuals and their activities, rather than a subject of reflection and study. Individuals who participated in the process have taken ideas from it, and learnt from their experiences.

The sum total of activities and in-activities which are gathered together under the umbrella of the Jahangirpuri School Project, do not quite add up to a 'project story'. Looking for a success story, it would be difficult to find. But then again, that is only one way of remembering a project. It may also not be the most appropriate way of remembering the innovations that the project tried to work with. Nor would it help us appreciate the complexity of establishing a working relationship between a formal education institution like a university, and 'a community'. For better or worse, the events that were hosted, the ideas that were floated, and also those that could not be pulled off, shape the landscape on which any future education activity in Jahangirpuri will have to take root. Whether they equally shape the landscape of the Department of Education at the University of Delhi, is more difficult to judge.

14. ENERGISING TEACHERS

Nargis Panchapakesan

Tucked away on one side of the Delhi University campus is a small school. The Central Institute of Education (CIE) Experimental Basic School was established in 1951. In a sense it is a rather unique school. Though it is managed by the Department of Education of Delhi University, the student profile is similar to that of a typical government school. It is a small elementary school (Classes 1-8) with about 250 children. There are 13 teachers, a librarian and a part-time music teacher. Many children at the school are first generation learners and come from families that are either semi-literate or illiterate. Almost all children have links with their rural background. Most speak Hindi or a dialect of Hindi at home.

Although the need for an intervention in this school had been recognised for many years, the formal intervention of a 'School Adoption Programme' was initiated only in 1992. The Department decided to extend its role beyond management of the school to also provide academic support. The programme ran from 1992-1997, following students from Class 1 through till they reached Class 5.

The intervention was an attempt to enhance the quality of the teaching-learning process, by redesigning curricula and providing support to the teachers through action research. As initially visualised, such an intervention was not to be limited to one school. The hope was that the District Institutes of Education and Training (DIETs) in Delhi would also draw from the programme by perhaps adopting schools in their respective laboratory areas.

How was this intervention accomplished?

A plethora of inputs are needed in such efforts: developing greater confidence in the teacher, providing her with a better understanding of how children learn and think, making available plenty of resources in the form of materials, learning to use printed materials, helping her to teach more effectively, promoting her ability to reflect on plan implementation, refining her understanding about the assessment of children, providing a forum for sharing insights about the teaching-learning process, enabling her to achieve greater 'class control', and enhancing her ability to use facilities in the class and school creatively. In other words, fostering greater autonomy in the teacher so that she, in turn, will know how to cope with and promote autonomy in the child.

A daunting task indeed. Is it possible? The experience of the School Adoption Programme suggests mat it is. What then did this intervention specifically entail? A conviction that teachers will become enthused and own and take responsibility for children's learning if the required support is available to them. What is meant by 'required support'? It means intensive and regular work with the teachers to several ends. Initially the purpose of the intensive interaction is to be able to negotiate issues such as the connotation of quality in education. An outcome of this dialogue is (obviously) an interrogation by them, of the current state of education, leading to a demand for change. This process requires continuous interaction with teachers as well as enough time for them to reflect on their changed perceptions.

The building blocks of school reform

Once the need for reform is established, it is imperative that the wherewithal to bring about the reform be in place. In this case, firstly it meant a blueprint of the redesigned curriculum which was necessary because the planned approach was totally different to conventional practice. Teaching was no longer based on prescribed textbooks, but on topics. Children were actively involved with this teaching-learning process. They had a space to talk about themselves and anything that interested them. Children's readiness for maths and language and their knowledge of the environment became the basis for planning the monthly curriculum. Class 1 topics included 'Animals and plants', 'Weather, earth and sky', 'Our body'.

These topics unfolded through theatre, story telling and other creative activities for self-expression.

Secondly, a change in the ethos of the classroom was required. It needed to be more nurturing, less judgmental and non-threatening. Teachers needed to develop greater sensitivity to children and to their responses, and to seriously listen to them. They also needed to invest energy observing (heir children in order to be able to plan their leaching more fruitfully. The field worker associated with the project helped the teachers develop profiles for each child. Sharpened sensibilities enabled teachers to assess children systematically and holistically. In small ways, children learnt that they mattered. Instead of awarding prizes to the best student on the Annual Day, each child was given a book - there were no firsts and seconds. Even the seating in the class was rearranged for children to move about freely. The walls were painted black so that children too had blackboards to write on. All in all, a genuine effort was made to bring the child cent re-stage.

Thirdly, resources required for effective implementation of the new curriculum were provided. These resources were in the form of academic support in specific pedagogies (teaching of reading and writing, early mathematical concepts), materials for children and teachers, books specially selected for both teachers and children. The school was able to draw on the library and other resources at the Department of Education. The teacher's time-table was altered to make lime every week, for meetings and library work.

An element of research was also incorporated into the project. Classes were observed, records kept about children's development, and classroom processes analysed. From the data gathered, feedback was also provided to the teachers so that they could modify their planning/ implementation, when indicated.

In order to bring about the desired change, considerable investment in terms of expertise and time was required on the part of the project team. This included Dr Poonam Batra, the project coordinator, who was aided by a research assistant. They had to identify and collect relevant material, and store and distribute it. They had regular meetings with the teachers to facilitate weekly planning and provide feedback about the previous week. During the planning, supplementary materials and teaching aids required were also identified. As more teachers became involved with the programme each year, a forum of professional activity began to take shape in the school.

The programme also tried to draw parents into the process. Meetings with parents were organised, in order to explain to them the nature of the intervention, its rationale, and to inform them about the development of their wards. Parental resources *were* also used. One of the parents was a gardener and was invited to interact with the children.

Recollections and reflections

What was the impact of the School Adoption Programme? Teachers who were involved with the project recollected it with enthusiasm. They felt that the programme had provided them an opportunity to grow professionally, despite the extra work it entailed. They had enjoyed the freedom of not being tied to a textbook, and of having a plentiful and rich source of supplementary material. They enjoyed the opportunity of interacting with other teachers and sharing pedagogic concerns. Teachers still want to be involved in academic dialogues about education, mid furthering an understanding about quality in the teaching-learning process. After the programme ended, they organised a seminar on education and presented their views to other teachers of the neighbourhood schools.

In the teachers' perception, children had also benefited from the intervention, becoming more articulate, expressive, creative and confident. Children began to enjoy reading and learnt the value of books. Group work helped children become more cooperative and gender sensitive.

Although it was hoped that the School Adoption Programme would influence DIETs to adopt schools, this did not materialise. The initial momentum in the school too could not be sustained; with the older, more conventional teachers resisting the programme, from the third year onwards. Yet, there are enduring tributes to the programme. The resource material from the intervention became [he nucleus for a resource centre located at the Department of Education, for teachers and practitioners of elementary education. In the school, [he teachers have decided to retain the focus on qualitative evaluation of children, initiated during the programme. As a single indicator, the current format of the report card (finalised by the teachers themselves after much deliberation) reflects their changed perceptions about quality education.

Conditions essential for facilitating such an intervention:

• Administration must actively support the innovation. This support should continue to be provided even when the leadership changes, which may result in a change in policy.

• Ground for the intervention must be carefully built. Teachers should be convinced of the need for the intervention and hence must be willing to experiment, he reflective. This implies a greater commitment and investment on their part without a promise of tangible rewards.

• There must be sufficient teachers to support each other, to provide a critical mass which is needed to sustain any change, particularly in a system which is slow to respond, if not positively resistant. The group of teachers must be cohesive and work together. For this, there has to be some sharing with all teachers, particularly with those not involved in the intervention. The latter often feel that the teachers participating in the programme are given undue importance. A divide among the teachers on the basis of differences in perspective has to be carefully handled. Several teachers cautioned against the politicisation caused because of the intervention.

• Initial enthusiasm also has to be sustained. This is possible if the teachers find that they are benefiting professionally and receiving recognition for their efforts. They also get a sense of fulfilment when they find that the children are growing because of the intervention.

• Underlying all these conditions is the premise that the intervention is based on sound theoretical understanding and practical knowledge. Interventions may fail if the required inputs are not adequate, theoretically or in terms of feasibility.

Children's profiles recorded by the teachers

Child A

A reserved child is supported completely from home. Comes very well prepared for school. Intelligent, finds school work interesting, even easy. Has good command over verbal expression/vocabulary. Very polite does things according to rules and in order. Enthusiastic, is articulate but appears controlled and within 'accepted' bounds. Likes occasional noisy games, but this is short lived. Imaginative, likes to fantasise but is reluctant to share with the whole class. Prefers a 1-to-l relationship. In theatre, takes times to respond but eventually participates. Likes word games, puzzles and activities that allow some mental exercise. Popular within a small group. Usually sits with Bir, Lalit, Latesh and others who seem to be at his level.

Child B (7 + years)

Older than most children. Detained last year. Very irregular, remains ill, tired-looking in class. Fights with other children and gets beaten up very often, and cries. Comes to school dirty, uncared for, with dirty clothes, hair and nails. Finds it difficult to differentiate between similar class of objects. Observation power is low. Responds as an individual, not as part of the class. Responds but not always connected/coherent. Complains about other children. Yearns for individual attention. Has physical problems: no body coordination, clumsy, stiff, face static, expressionless. Does not move spontaneously like other children. Emotionally disturbed. No friends in class, some friendship with Pooja carried over from the house. Writes language well - with characters well formed, also numbers and drawing. Is enthusiastic to do and show. Bui use of rubber is messy, like his thoughts, and reflects a confused state of mind. Undecided as to form, shape .... cannot carry out an idea, develop it properly.

Note: The Basic School is not a government school — it is managed by the university department and does not directly tome under the control of the Municipal Corporation of Delhi, although it is hound by MCD rules. Despite this difference, winch makes the story an exception in this collection, it has been included as it compares with government schools and provides significant insights.

15. QUIET TRANSFORMATION

Sharmila

"My friends don't believe that such a school exists." Mani, an ex-student of a New Delhi Navyug School, entered his fond reminisce about his school with this examination It is rare to hear such words about a government school. What made schooling so special and memorable for Mani? Why was it difficult for his friends to believe'? How was such a sense of belonging to the school made possible? Who initiated these processes? The answers to these questions can be found in the work of Ms Achla Kukreti who worked as the head mistress of the school for fifteen year.

Achla Kukreti chose to work in the government schooling system. The Navyug Schools were set up by the New Delhi Municipal Corporation

(NDMC) to provide' quality education to promising children from (he weaker sections of society. Kukreti became associated with one such school, and guided by her search for excellence; she nurtured this school as an innovative space. The school not only had basic infrastructure but also better resources and greater autonomy than an average government school. As headmistress of the school, she took care that the complacency associated with most government institutions did not creep in. In 1994, recognising the quiet transformations she had been able to achieve, Kukreti was given the innovative teacher award by the National Council for Educational Research and Training (NCERT).

Learning through projects

Talking to her and other teachers who were her colleagues in the school, one can capture some glimpses of the efforts that her team made, to make school an enriching experience for the children. Rather than being dictated by the textbook and prescribed syllabus alone, collective learning through projects was incorporated into the curriculum. At different points of time, projects such as *Desk ek, rang anek,* 'The world around us', 'The puppet fair'. 'Values we uphold' were undertaken. All the teachers were involved in researching and planning each theme. Although it involved more work, many teachers appreciated how such project work contextualised learning and enabled children to explore different aspects of a theme in an integrated way.

One such project, which was widely acclaimed, was planned 10 help children appreciate the freedom movement, and to value India's independence and sovereignty. The attempt was to make it a part of their conscious thinking and reflection and demonstrate the relevance of historical situations to contemporary realities. As part of the plan, the teachers selected some important dimensions such as the background of the struggle, important events, noteworthy individuals, and the role of women. These were divided into sub-topics. Each class took up the sub-topics that were appropriate to the age and comprehension level of the children. This process culminated in an audio-visual presentation on the freedom struggle in which the whole school was involved. Both teachers and children enjoyed working on the project and were proud to see the outcome of their efforts. The presentation was landed by educationists, journalists, authors and the general public.

Project work allowed for various types of learning - such as purposeful reading, comprehension, gathering relevant information from different sources, summarising, creative expression through drawing, music, dance and drama. It provided students with many moments of independent learning. Without rhetoric children learnt the values of responsibility and cooperation. Students and teachers selected areas of their interests and skills, explored and analysed material together. Teachers of social science, language, music and dance, along with the librarian, worked as a team. Project work democratised the process of teaching-learning and brought out the resourcefulness of all - teachers, children, support staff and parents. Teachers felt motivated to take up such projects for they realised that children were learning better and faster.

Empowering teachers

In order to make this possible, Kukreti recognised the importance of empowering the teachers and building an environment in which teachers could strive for improvement, and learn and grow. She nurtured their creative potential and tried to inculcate in them the feeling that they had a special role to play in the success **of** the school. Though she had the authority to decide programmes, the work was carried out in a climate of receptivity and involvement.

I attended a UNESCO workshop on integrating children with disability in the classroom. We don't have disabled children in our school but I picked up the idea of helping children learn in small groups. This decreased ray work load, increased the participation of children and made children more confident and responsible. However beyond a point it became difficult because of syllabus constraints. - A teacher

Teachers were given the freedom to experiment, to set their own goals, to teach textbooks and transact the syllabus in (heir own way. Each teacher's planning was discussed with her individually. The headmistress provided avenues that helped teachers enter newer domains of learning and get exposed to progressive thoughts in the field of children's education. Workshops broadened their perspective, deepened their understanding of concepts, and expanded their repertoire of teaching-learning activities.

The congenial atmosphere at school, and the open communication with both authorities and colleagues helped us in giving our best. - A teacher

Staff meetings were used to discuss problems of the classroom and school, and to appreciate efforts and achievements. The teachers were made aware of resources both within and outside school that they could draw on to enrich teaching-learning. Relevant government policies and programmes were discussed with the teachers, which helped them understand the broader context of their work. Their concerns and feedback were also shared with the NCERT. When some of their suggestions were incorporated into the language textbooks, it boosted their confidence.

School leadership

The headmistress herself modelled progressive attitudes such as not labelling children as 'intelligent' or 'weak', and not criticising colleagues In front of children. Questionnaires and checklists were prepared which encouraged teachers to introspect, and made them alert to their unconscious attitudes and biases when leaching children from poorer sections of society. One teacher recalls how she became aware of this when in one such school form she came across the question: 'How would you feel if you were in your child's school and found that the teacher does not know your child's name?'

Kukreti believed that it was the responsibility of the school to make parents feel part of the school. She was aware that the class difference between the teachers and the students influenced the teachers' attitude towards children and their families. Teachers were expected to offer due respect to parents, be considerate towards the children's context, and be responsible for children while they were at school. Through questionnaires and in meetings with parents, the headmistress and teachers also tried to promote an understanding of the school and stressed the need for parents to take an active and supportive interest in their child's potential and performance.

All these initiatives had a hearing on children's experience of schooling and their learning. School became a vibrant space where both teachers and students were engaged in activity. There was a general improvement in the school results. In the NDMC National Talent Search Examination, 40 per cent of the total scholarships were bagged by students of this school. Thus students from a government school could face the world and cross boundaries despite coming from underprivileged backgrounds. By the time

they left school they were fluent in English, which added to their confidence, helped in accessing information, and exploring opportunities. Some students made it to prestigious higher education institutes such as the All India Institute of Medical Sciences (AIIMS) and the Indian Institute of Technology (IIT). Parents also appreciated the efforts of the school. Their aspirations for their children became higher and yet remained realistic.

The essential idea was to make learning child-oriented and create a. solid foundation for further learning. It was a creative period in the life of our school - A teacher.

These processes enhanced teacher's motivation, their faith in themselves and their commitment to children's learning teachers found ample opportunity for intellectual growth as well as creative expression. They tell a sense of achievement when they saw the difference that they had made to children's learning and their future.

Kukreti's work demonstrates how an effective school leadership can use and expand the spaces within government structures for innovation. It also shows that innovations in schools become a reality when there is an active participation of teachers. A headmistress or principal with initiative and commitment can provide the critical support needed to alter the quality of teaching-learning, teacher development and parental involvement, and influence the life of the school. There is a need for the system to encourage, recognise and be responsive to such innovation.

Innovation and change

Kukreti could not continue at the school, due to departmental changes and mass transfers within the NDMC Navyug schools. She is now the vice principal of another Navyug school, and in collaboration with the principal is catalysing new initiatives there. This change at once raises the question of how her earlier work is being sustained. At one level, the contribution of such innovations can be understood in terms of the ideas that it generates; these ideas are shared and continued through individual teachers who carry forward the spirit of innovation by building their capacity to work within the existing' system. Such processes of growth and learning leave teachers at a threshold where they can contribute much more to their practice and to the school and education system as well. Potentially, such teachers could

become peer leaders, provide inputs to teacher trainees, engage in reflective teaching, create teaching-learning materials, etc.

At another level, such innovations become vibrant, visible and 'legitimised' only when there is a leadership to support them and a collective that works on shared principles. Changes in leadership could bring about a change in the outlook and priorities of the school and consequently dilute the total ethos and impact of the innovation. Especially in the government schooling system, thought has to be given to the kinds of mechanisms that can permit such collectives to form and grow under effective leadership; and serious thought has to be given to transfer policies that do not permit such collectives to continue.

The Navyug school experience also demonstrates that if the government system is committed to quality education, it can provide resources and create structures that promote better functioning of schools. Kukreti is the first to acknowledge the importance of the administrative freedom she had in matters such as the selection of teachers. The provision of clerical staff and exempting teachers from election duty also made it possible for teachers to focus on teaching.

Navyug schools also show that better education can open more avenues for children from lower socio-economic strata. But it also raises the difficult question of whether we must accept *that* the needs and aspirations of different social strata can be met only through different kinds of schools for each group. Creating some privileged schools within the government schooling system docs amount to accepting a status quo in existing social inequalities. We must continue to engage with the question of how to ensure that quality education reaches *all* children.

16. SOCIAL ENTREPRENEURSHIP THE CORPORATE WAY

Archana Mehendale

The year 2002 survey on corporate social responsibility conducted by the United Nations Development Programme, The British Council, the Confederation of Indian Industries and Pricewaterhouse Coopers concluded that 'there is an all-round desire to be a good corporate citizen' and that 'passive philanthropy is no longer sufficient in the realm of corporate social responsibility; Philanthropies such as those set up by the Tatas and Birlas marked the beginning of private initiatives in the field of social welfare; and the recent growth of sunrise industries - particularly, the information

technology sector - has seen a rapid and intense expansion of corporate social intervention.

This new intervention is closely linked to the generation of wealth among a class of techno-entrepreneurs and their familiarity with the idea of 'corporate citizenship', an idea well established in the Western corporate world with whom most of these enterprises have strong business ties. Furthermore, with the state slowly withdrawing from its basic welfare functions and actively encouraging the private sector, the political leadership in states like Karnataka and Andhra Pradesh is extremely open to the involvement of private bodies in the social sector.

The result is a growing trend among corporate houses and leaders from the corporate sector to set up trusts and foundations that can directly engage with social issues. These trusts and foundations are independent entities but draw human and material support from the parent companies. This arrangement seems to provide companies with a greater sense of satisfaction and engagement than passive philanthropy. Bangalore, the hub of new economic enterprise, is also a home for many such trusts and foundations. Some of the prominent groups include the Azim Premji Foundation, set up from the private funds of Mr Premji, chairman of Wipro; Akshara Foundation, a partnership between the corporate sector, the government and individuals; the BV Jagadeesh Foundation, set up by an NRI teclno-entrepreneur; and Infosys Foundation set up by Infosys Technologies.

Many of these foundations recognise education as the key to socio-economic progress. Their activities are thus directed towards universalising elementary education and improving existing government schools. Being outside the realm of politics and relatively non-controversial, education seems to be a safe social investment. This article highlights the key features of these initiatives by discussing the nature of their work, the practices followed and partnerships with the government.

Computers in education

Several areas of the schooling system have invited attention. The Confederation of Indian Industries' Institute of Quality provides training programmes to government school teachers. Management exercises on communication, problem solving and group dynamics are conducted to enable teachers to focus on ways of improving quality in their work, despite the existing systemic limitations. The Infosys Foundation provides books to school libraries to promote a reading culture among children. Many

foundations have helped to improve buildings and infrastructure. But the one area that has received maximum attention has been the introduction of computers in schools.

It is popularly believed that education needs to keep pace with the changing requirements of a technology-oriented market. Providing government school children an opportunity to use computers for learning is seen as a step towards attaining 'digital equality', or simply as a tool to attract out-of'-school children into schools. A majority of these new corporate initiatives promote computer-assisted learning in government schools. This entails providing computer labs to schools, training teachers in using computers for teaching, and developing relevant content and software. Most trusts encourage the employees of their parent company to donate used computers, and also appeal to other companies to fill in the need for computers. A growing auxiliary service industry supports the new needs of teacher training and educational software development.

One can see some changes in the student-teacher interactions, at least within the computer labs, in schools where computers have been introduced. One teacher whom I met said that computers have bridged the gap between students and teachers: "Students are less afraid of the teachers and at times teachers learn different applications from students." The teachers themselves seem proud to have acquired these basic computer skills, but they find it difficult to conduct these computer-assisted learning sessions in situations where they are already understaffed. A teacher in a corporation school said: "Although having computers opens new horizons for our students, it is an expensive method of teaching. Instead of teaching our freedom struggle through a multi-media presentation where only two students can use one computer at a time, we can teach the same topic using drama or stories. But since we have been given the computers, we have to use them." For a few teachers, providing updates to the donors, as is required in any externally funded programme, seems an additional burden.

The scale of efforts

A striking feature of all these interventions is the sheer scale of operations. For example, Intel's programme for teachers has trained 1, 00,000 teachers within 1000 days. The Infosys project has set up 10,000 libraries. The Azim Premji Foundation aims at training 1, 00,000 education functionaries in Karnataka and Andhra Pradesh. Their computer-assisted learning centres which are currently serving 30,000 children through 90

centres are slated to expand to another 135 centres, across all 27 districts of Karnataka. They work in Karnataka, Andhra Pradesh and Gujarat. Akshara Foundation has served 20,000 children in 400 balwadi centres in Bangalore alone over the last three years. The ability to envision working on such a large scale, spread over wide geographical areas, and in short time spans, seems to be influenced by their corporate affiliation. It is not a difficult proposition given the human and material resources available at their disposal. These initiatives also enjoy a degree of freedom associated with the availability of adequate resources. Since most of these initiatives are not answerable to external donors, they can try out new strategies and experiments unlike the traditional **NGOs** that are often driven by donor agendas.

However, working at scale is also a strategic choice. According to Mr **C.V** Madhukar of the Azim Premji Foundation, "the need to demonstrate success on a large scale is important if the government has to learn from our experiences". Small experiments, however credible, are rarely taken seriously by the government. Reaching such high targets requires huge efforts in terms of identifying and training volunteers, on whom most of these initiatives depend. These volunteers, drawn from the local communities, typically receive a basic orientation and are paid small honoraria. Their involvement does enhance and empower communities to participate and influence the schooling of their children. But paradoxically, as schools become more dependent on the presence and involvement of such volunteers, there is an overall devaluation of teachers and weakening of the provision of schooling for the poor.

Transfer of technology

Many of the new corporate initiatives are staffed by professionals with business management and technology backgrounds, who are sometimes taking a break from the corporate world. They bring with them management practices and tools. There is a strong emphasis on analysing the allocation of inputs and resources, fixing targets and concrete time-bound deliverables, and using the media. The discourse uses concepts and terms such as 'accountability to the stakeholders', 'transparency', 'public relations', 'creating models for incentive oriented learning', 'partnerships' and 'leveraging', for 'quick results with tangible impact'. Some initiatives have a self-liquidation prospect also worked out - the aim is to withdraw after completion of a time-bound programme. The Akshara Foundation has

recently withdrawn itself from 50 balwadis which are now run independently as micro-enterprise by women from the local communities.

There is also an effort to take these management tools to the school level. The Akshara Foundation has recently launched a performance monitoring and measurement project in the corporation schools of Bangalore with Janaagraha, an NGO involved with public participation in governance. Under this project, 47 performance indicators on all aspects of school management have been identified with the help of stakeholders, comprising the corporation education department, the state government, parents, elected representatives, advocacy groups and citizens. These indicators cover dimensions such as infrastructure, teaching staff, community involvement, and children's learning in subject areas. An audit of indicators, such as the percentage of children passing the school examination, attendance rates by gender, teacher attendance, and the completion of the daily lesson plan are expected to enhance accountability of the system towards children and parents. An assessment of the number of teachers in school, the number of teachers' meetings held, pre-service qualification requirements, the number of in-service skill training programmes attended by the teacher - all these would reflect the extent to which the government has met its obligations. Teachers and managements are encouraged to reflect and develop their individual plans in accordance with these indicators.

Government as partners

Most state education departments have actively encouraged private initiatives in strengthening government schools. Barring a few, most trusts and foundations also prefer to strike a working relationship with the government, however challenging it may seem, since universalising education and improving the quality of schooling is the primary obligation of the government. Last year, the government of Karnataka took the help of some foundations for implementing its *Chinnara Angala* (Bridge School) programmes to bring out-of-school children into mainstream schools after a 60-day academic programme. The chairperson of Akshara Foundation, Ms Rohini Nilekeni, summarises the nature of this partnership: ''The government takes our work seriously since we share the same universe of concern, because we work along with the government, inside the system rather than from outside, and because we have shown a strong community mobilisation for universalising primary education."

Usually these partnerships have been formalised through a memorandum of understanding (MOU). Not only does it help in ensuring transparency and accountability of both the parties but it also insulates the project from changes in political leadership and bureaucracy. Certain commitments and responsibilities of the state government get systematically worked out in (his process. For instance, the MOU between the Azim Premji Foundation and the education department of Karnataka includes commitments by the state government to provide basic infrastructure to schools as well as its obligation to respond to demands articulated by the community with respect to building schools and deputing teachers.

These close interactions with the government have also influenced the existing policy towards government schools to a certain extent. For instance, the concept of a 'School Zone' where a demarcation of school responsibilities is done geographically and all children within a given geographical area or 'school zone' are the responsibility of a given school was taken up by the state government after being advocated by Akshara Foundation. The computer-assisted learning centres of the Azim Premji Foundation are being taken to additional centres in north-eastern Karnataka as part of the *Sarva Shihha. Abhiyan* programme of the government.

Several state governments have also been inviting private donors to 'adopt' schools, or 'sponsor' programmes for schools. The Government of Karnataka has provided an illustrative list of items that can be donated. This scheme is decentralised. A prospective donor can visit the school directly and sign an MOU for a period of two years which can be subsequently extended. The schools are instructed not to receive any cash and all material that is donated in kind is registered in the stock book. The donors are also encouraged to visit and check the material they have donated and see if it is being used for the purpose for which it was donated. In 2004, at least 7.958 schools in various districts of the state are receiving aid under this programme, and more than 56 crore rupees has been spent so far.

A win-win situation?

The government has been willing to make space for such corporate affiliated initiatives, as they enhance the funds flowing into areas other than teacher salaries and administration. They have also helped to bring new initiatives into government schools such as the use of computers. Leaders from the corporate world are now beginning to get involved more closely with a direct presence in the field, and influence how the assigned money

should be utilised. The lines are often blurred between what is corporate and what is personal, what is purely a philanthropic activity and what is an image building or a brand building exercise integrated within the business plans for accessing new markets. In this context, the moot question is - how does the government guard its own machinery from being utilised for brand-building exercises of the corporate world? Who are these initiatives finally accountable to: the government, the communities or their own stakeholders?

Since there are many foundations working with a similar agenda, there are inevitable overlaps and duplication of work. This is particularly evident in the case of training teachers to use computers in education, where the same set of teachers have undergone training in Microsoft applications through various sources. Is there a possibility whereby initiatives with a similar agenda could work together and avoid a waste of resources?

Not all initiatives have started with an 'expressed need' from the community. The need for computer literacy has definitely been created; and now more and more schools are looking forward to having their own computer labs. While basic infrastructure such as teachers, seating arrangements, teaching-learning materials and toilet facilities still figure highly on the 'most needed' lists of government schools, does the entry of computers in these lists signal a growing want rather than need for using computers as a pedagogical tool?

Though it is early days yet, this partnership seems to work for both the proactive corporate philanthropists as well as the government schooling system. However, as more and more individuals and companies want to step into this world of public-private partnership, the government must be able to define its own policy and agenda for education, within which these efforts may find their niches and roles to play. Equally important, it must keep in check any tendency to pass on its own responsibility to the newly emerging private social entrepreneurs.

17. ENVIRONMENTAL EDUCATION TOWARDS ACTION

Manjiri Nimbkar and Maxine Berntsen

Educators generally agree about the importance of environmental education in schools, but there is a great lack of clarity about goals and content or the strategies required for teaching it. Merely referring to trees and animals cannot qualify as environmental study. The real need is to help children and adults understand the specific problems and issues related to

their own environment, and to help them to adopt a more sustainable lifestyle, thus enriching their own life and the ecosystem as a whole. This is a concept that we do not often find reflected in textbooks for environmental study.

The work of the Bharati Vidyapeeth Institute of Environment Education and Research (BVIEER), led by Dr Erach Bharucha, stands out in contrast. Since 1995, BVIEER has been running a school environmental education (EE) programme in 62 schools in Maharashtra. These schools are situated in two very different environments, 46 of them are in Maval and Mulshi *talukas* which are in the very delicate ecosystem of the Western Ghats. Another 16 schools are in Lonavala, Pune and Ahmednagar - cities which are growing in a rapid and unplanned way.

In 2002, the programme is being taken to a 100 municipal schools in Pune city. The curriculum that has been developed to suit such diverse environments is broad-based and flexible: it demonstrates a strategy that can be adapted for locale-specific environmental education.

The genesis of the programme

BVIEER grew out of the joint efforts of two individuals: Dr Patangrao Kadam, the founder of Bharati Vidyapeeth (BV), and Dr Erach Bharucha, a surgeon and naturalist. The Bharati Vidyapeeth, now a deemed university, runs a number of institutions, including colleges and schools. In 1993, Dr Bharucha, Dean of the Medical College, informally suggested that the BV set up an environmental education cell. Dr Kadam immediately supported the idea, and BVIEER was initiated.

BVIEER began its environmental education programmes in 1995, with three-day workshops conducted for teachers of the Bharati Vidyapeeth schools. They soon realised that three-day workshops do not equip teachers with a firm enough foundation in environmental education, and teachers require additional support through the year. There was also a problem of finding appropriate teaching or reference materials. None of the government-prescribed textbooks for science, social science or language provided any basic information or tried to create awareness about environmental issues among the students. To respond to this lacuna, BVIEER decided to develop a manual for teachers.

The manual for teachers

Developing the manual proved to be a mammoth task and required the sustained efforts of a team of scientists and artists over several months. Finally a 200-page manual, both in Marathi and English, was developed with basic information about natural resources, bio-diversity, pollution and non-conventional energy. The manual linked this information to the textbooks and also gave suggestions about activities, games, ideas for field visits and school projects. This careful linkage with the textbooks has made it easier for the environmental education programme to be accepted by schools, and to be taken more seriously. In contrast, most extra-curricular activities such as nature clubs in schools are 'optional' and seen as 'non-serious'.

To develop the manual and meet teachers more often during the school year, BVIEER needed additional funds. The Confederation of Indian Industries (CII) stepped in to support an-environmental education programme in several schools of Pune for three years.

The environmental education programme expands

To make the EE programme effective, the BVIEER team laid down certain criteria:

* Involve not only the students, teachers and school principals, but also education officers and the local community in planning and executing the programme

* Be activity-based, and meet the four-fold aim of providing information, building skills, improving understanding, and space for action.

* Focus efforts and concentrate on only a single class, and make a slot for environmental education in the daily time-table

* Limit the subject matter to three themes linked to the textbook and which are applicable to the local environment.

BVIEER developed a set of 'modules' as the basis of its programme for the first year. The modules included material from the textbooks as well as other activities. The textbook-linked modules were transacted by the teachers themselves, while BVIEER staff organised field visits, slide shows, games and other activities. The teachers and staff from BVIEER met several times in the course of the year to plan and review the programme.

In 1996, nine government-aided schools were selected, and a three-day orientation workshop was held at the beginning of the year for all the teachers who would be actively involved in the programme. The programme was initiated with Class 7 students, and three locally relevant themes were

chosen - water, traffic and waste. On the theme of waste, the information base included me following: the classification of waste into biodegradable and non-biodegradable, making a compost pit, and recycling waste material. Tire activity modules selected were a survey, visit to a garbage disposal unit, and visit to a handmade paper factory. Each month, four modules and two visits from resource persons were organised.

As the school environmental education programme was getting established in Pune, the BVIEER was given an opportunity to expand the programme to Lonavala, a hill station on the Mumbai-Pune road.

BVIEER had already been working in this area for some time in cooperation with the Tata Electric Companies, in a programme of eco-restoration of the catchments area of the Walwan dam. Situated on the plateau of the Western Ghats, Lonavala is part of a highly threatened ecosystem. Large areas of forest are being denuded and me viability of the Western Ghats as an ecosystem is in danger. 'The area is to be notified as a protected area, but in order for this to be successful, local support has to be first garnered. BVIEER recognised that a lot could be accomplished in the area through a school education programme.

This led to the launch, in 1996, of a second locale-specific EE programme, in seven schools of Lonavala. The programme involved municipal and *Zilla parishad* schools as well as private schools. In the first year, the EE programme in Lonavala involved 40 teachers and 250 students. Here too, the programme was developed in tandem with teachers and principals. The themes selected were again locale-specific - garbage, pollution, deforestation and tourism.

More schools have now become interested and want to include environmental education in their curriculum. New modules for other classes have also been developed, supported by agencies like the India Canada Environment Facility (ICEF), WAVE (India), and the JRD Tata Trust. Each year the EE programme culminates in a joint fair held at one of the participating schools. Students, teachers and many parents from all the private, municipal, and Zilla parishad schools involved in the programme participate in the fail' and use this as a platform to share their work, and to spread the message of environmental education.

Some of the schools involved in the early stages of the programme are today able to carry on with only minimal guidance from the BVIEER staff. Some of the teachers trained earlier have become resource persons and have helped to take the environmental education programme to other schools.

They often contact BVIEER to ask for slides and activities that they can take to schools in their neighbourhood.

Strategies to support and spread the programme

BVIEER has added on two more significant activities to support the programme in schools and to provide a foundation for its expansion. They have developed a diploma course in environmental education for school teachers. Even though there are no incentives, teachers have become motivated enough to spend three thousand rupees out of their own pockets to widen their knowledge about environmental issues.

BVIEER has also started an activity centre at its premises in Pune. Here there are exhibits of all the different ecosystems and jungles of India. A class of 40 students can spend the day at the centre for a fee of twenty rupees per child, and if the)' book the centre in advance; they can get a person from BVIEER as a guide. They have also developed a mobile exhibition that can travel to the most, remote villages of Mulshi from where children cannot afford a journey to Pune. This mobile exhibition is an attraction at the annual fair too.

The Pune Municipal Corporation has asked BVIEER to run the programme in all its 100 schools. If more schools want the programme, BVIEER will need more trained people and additional resources. Anticipating and responding to this need for resource persons at different levels, BVIEER runs an MSc programme in Environmental Studies. Through this course, many well qualified and enthusiastic people have been nurtured.

By any criterion, the school environmental education programme must he judged an unqualified success. The level of awareness and concern about the environment has increased remarkably among the children. The principal of a school in Male, a village in Mulshi *taluka* observed, "You will not find a single water tap running in our school any longer, and children routinely get bleaching powder from the Gram Panchayat office to treat their drinking water." In the more remote areas there are fewer behavioural changes to be seen among the Adivasi children, hut teachers feel that the EE programme has stimulated children to think and talk much more than they did in the past. This in itself is no mean achievement. As for the teachers, many of them have become self-sufficient, and have also started serving as resource persons to other schools. They are interested in enrolling for the diploma course at their own expense. These achievements speak for themselves!

BVIEER was one of the groups involved in a two-year study initiated by the Ministry of Environment in 1999, and carried out across eight states of India - Maharashtra, Andhra Pradesh, Assam, Goa, Jammu and Kashmir, Orissa, Punjab and Uttaranchal. BVIEER analysed over 1800 textbooks for the portrayal of environmental issues. At times, the information was dated. For example, DDT was often cited as a pesticide, even though its use has been banned in India. There was little locale-specific curriculum, so children did not relate to the content. There was little information on the diversity of local plant and animal life. Concepts were often not graded adequately across the school years. Solar energy was cited as the most common form of non-conventional energy but other sources were rarely referred to. Following the textbook analysis, groups across India were involved in rewriting textbooks for Classes 6-8 in these states, in science, social science and language. Resource persons from environmental education worked with the state education department, textbook writers, and illustrators for this. The textbooks are now in the process of being field tested in a 100 schools in each state.

Looking back

The reasons for the success of this programme are many. Initially, the BV schools themselves offered a ready laboratory for the experiment. As the EE programme developed, Dr Kadam was able to garner support from the government for it. More importantly, the infrastructure and expertise of BVIEER provided a sound foundation for the programme. Much of the success of the programme is because BVIEER staff enlisted the help of local teachers and provided a year-long interaction and support. Locale-specific programmes were identified and addressed in sensitive and imaginative ways. Limiting the subject matter to three themes and one class made it easier to institute in schools and replicate. The teachers' manual, activity centre, and teacher development courses were tangible steps taken to ensure the continuity and expansion of the programme. As with any intervention, some of the positive features of the BVIEER programme are unique, in dial the individuals and institutions involved are especially outstanding. Nevertheless, the strategy of school environmental education being developed by BVIEER is one that offers great promise for broad-scale adaptation.

18. TOWARDS INCLUSIVE EDUCATION

Archana Mehendale

Until a few years ago, Sundaram could not think of educating his hearing impaired daughter as there was no special school in his taluka. Neither was the government school equipped to attend to his daughter's special needs. Today his daughter studies in Class 3 of a government primary school in Tumkur, and is beginning to say a few words.

Teachers from Dandikere Lower Primary School in Tumkur were reluctant to admit Sujatha, a totally blind girl, to their school. They were unsure of how to provide for her. Today the same teachers are helping her learn through tactile discrimination and interaction with other children in the classroom.

Educational opportunities are now available for children with disabilities within existing government schools, particularly in rural Karnataka. Children with disabilities can now be seen learning along with other children in the classroom, and it is the regular school teacher who teaches them all. This is exactly what 'inclusive education' aims to achieve. In this system, the responsibility of educating children with disability is shared by the whole school. The educational environment is flexible. The pedagogy recognises values and respects differences in learning among children, and it demands that the teacher evolves an individualised instruction plan.

What is inclusive education?

Inclusive education significantly departs from the earlier model of 'integrated education' that has been implemented by various voluntary organisations since the early eighties.

In integrated education, one resource teacher is trained in special education for all disabilities. She is assigned to eight impaired children, and is responsible for their education. She has complete responsibility for these children, from bringing them to school to helping them with academics. The regular teachers are not involved in the learning process of these children. They feel that it is the resource teachers who are responsible for children with special needs and not themselves.

The model of inclusive education on the other hand, promotes the school itself as an agency for social rehabilitation and mains (reaming. Today, there

is an increasing recognition of inclusive education as trie better way of meeting the educational, developmental and emotional needs and rights of children with impairments.

Rationale for inclusive education:

• *All children have a right to learn together.*

• *Children should not be devalued or discriminated against by being excluded or sent away because of their disability or learning difficulty.*

• *Disabled adults describing themselves as special survivors are demanding an end to segregation.*

• *There are no legitimate reasons to separate children for education purposes. Children belong together, with advantages and benefits for everyone. They do not need to be protected from each other.*

• *Research shows children do better academically and socially in integrated settings.*

• *There is no teaching or care in a segregated school which cannot take place in an ordinary school.*

• *Given commitment and support, inclusive education is more efficient on educational resources. . .*

• *Segregation teaches children to be fearful, ignorant and breeds prejudice.*

• *All children need education that will help to develop relationships and prepare them for life hi the mainstream.*

• *Only inclusion has the potential to reduce fear and build friendship, respect and understanding.*

Inclusive education in Karnataka

The idea of inclusive education in government schools was introduced in Karnataka in 1997 by the District Primary Education Programme (DPEP). Seva-in-Action, a Bangalore-based NGO, is a pioneering organisation in the field of community-based rehabilitation and inclusive education for the disabled. In 1998, along with DPEP, they reviewed the integrated education training programmes of the state. They spoke to class teachers who had gone through the 42-day integrated education training; as also headmasters, education officials and teacher educators.

Seva-in-Action (SIA) found that although teachers were positively inclined, they lacked the skills required to implement educational programmes for the disabled. There were inadequate follow-up support services for teachers and children. The training and management of the programmes needed to be more decentralised and practical.

Based on these insights, SIA developed a pilot model for training teachers. This was developed for the DPEP in Magadi block, near Bangalore. They were able to nurture a cadre of 31 teachers at the cluster level who were intensively trained to practice inclusive education in their own schools, and equipped to provide resource support and training to other teachers in their cluster of schools. These 31 teachers in turn oriented more than 600 others through three-day workshops at the cluster level. Being government school teachers, they were able to understand and empathise with the practical difficulties that teachers face. Through their own practice, they proved to be inspiring models.

In the year 2000, Janshala requested SIA to extend its work on inclusive education to ten blocks in Karnataka where they work. Janshala is a joint programme of the Government of India and the UN. It has the mandate of developing strategies for main streaming out-of-school children by helping teachers use child-centred methods of teaching. Training teachers in inclusive education became a focal area of work for them. In 2000-2003, about 474 teachers were provided intensive training by SIA after a written aptitude test. Today these trained teachers work as multi-category Master Resource Persons (MRPs) under the Janshala programme. They are the key agents in SIA's effort to implement inclusive education in the Janshala schools.

Agents of change - the Master Resource Persons

The single most important reason why Sundaram's hearing impaired daughter is in school today and the teachers in Dandikere are confident about educating children with special needs is because of the supportive presence of the MRP. Each cluster of 10-15 schools has about two such resource teachers.

In order to be effective as resource persons, the selected government teachers undergo an intensive 42-day residential training programme. The course of study includes theory and practice; with subjects such as child development, prevailing perceptions and attitudes towards disability, types of impairments and their causes, prevention and early identification, and

identification of functional disabilities. The training includes areas such as curriculum and teaching adaptation to suit individual children's needs, and creating an inclusive environment in the classroom.

The training is experiential and it helps the teachers develop a greater sensitivity to the needs of the disabled. For instance, trainees walk blindfolded on the streets to learn about mobility training for the blind. Their fellow trainees assisting them are shown how to use sighted guide techniques such as holding a visually impaired child's arm, and giving good verbal directions.

Three components of training

The training of resource teachers has three components:

• **Assessment:** It teaches them to identify children with functional disabilities such as hearing, visual, intellectual and physical impairments, and specific learning difficulties. For this, they learn to use the functional assessment guidelines developed by SIA to assess the capabilities of children.

• **Teaching and learning:** Teachers learn how to devise education plans for heterogeneous groups keeping in mind individual needs. They learn to adapt the curriculum based on unique needs by modifying, replacing, omitting or compensating the content, teaching methods, and materials used for evaluation. For example, they learn how to plan a lesson on the parts of a plant for a class with both visually and hearing impaired children. Children with visual impairments learn by touching a real plant, while hearing impaired children learn through pictures and text on the blackboard. In geography, aids such as tactile maps are used for children with visual impairments. In cases where modifying or adapting the methodology or content is not possible. MRPs learn when to advise 'replacement': for example, visually impaired children can learn art instead of science. Omitting parts of the curriculum, such as colour concepts for visually impaired children, is a last resort.

Teachers also learn about the importance of 'compensation' in the sensor; experience of the disabled. Compensation is a way of dealing with severe forms of disability as (he general curriculum is designed for children with basic skills. Resource teachers are trained in different compensatory methods for different disabilities. There is 'tactile discrimination' for using Braille text, and special equipment for visually impaired children; 'total communication' that includes natural gestures, signs, and finger spelling for

the hearing impaired; and routines of daily living for the intellectually impaired.

• **Community sensitisation:** This is the third dimension to the training. It orients MRPs lo sensitise parents, panchayat, local communities and other teachers on inclusive education. Teachers, school authorities, non-disabled .students and parents of disabled children are oriented to the idea of an inclusive school environment. Each resource teacher is provided with a resource kit, a functional assessment guide, a training manual, and audio-visual material.

Janshala: enrolment of children with special needs

On returning to their schools and school cluster, teachers trained by S1A for Janshala conducted a survey. Nearly 10, 000children were identified with hearing, visual, intellectual, physical and learning impairments in the ten Janshala school blocks. Through persistent efforts, most of these children are now studying in schools. The MRPs visit schools within their cluster at least once a month in order to assist and guide the teachers. With the help of their colleagues, these MRP teachers reschedule their classes so that they can visit other schools in the afternoons. They maintain records for each disabled child with a case study that has information about the impairment, the aids and appliances provided, and the individual educational plan. They also train their fellow teachers to use inclusive education strategies. More than 2000 teachers have been trained by them.

The Block Resource Coordinator of Sira Tumkur, seems convinced of the philosophy of (his approach. "Inclusive education is the best way of educating children with impairments. Earlier, teachers did not know how to teach special children and therefore such children were forced to remain out of school. Today, teachers use various techniques to make education possible for these children." On my visit to the K Ranganahalli Government Higher Primary School, I learnt from the headmaster about the classroom adjustments being made to help impaired students. Children with hearing problems and those who are partially blind sit in front of the teacher. With only five or six feet between the teacher and the student, it is easy for them to lip-read. Teachers are now sensitised not to cover their face with a book as it may hinder lip-reading. They also make sure that their instructions are not just verbal but written on the blackboard. MRPs encourage teachers to analyse their teaching tasks and break the lesson plan into smaller units so

that it is easier for students with impairments to follow. The strategy of recalling previous lessons before starling new ones has also been useful.

Different teaching methods

Mr Jagadeesh, an enthusiastic MRP from Sira, explained the importance of activity-oriented learning and the use of a multi-sensory approach. For example, the tactile method is used for visually impaired children. Abacus and Taylor frames are used for teaching mathematics. He has developed several teaching materials, keeping in mind the specific needs of the disabled. One of these is a model that demonstrates how energy can be converted into sound, mechanical, light and electrical energy. This model, prepared with inexpensive locally available material, is useful for children with hearing, intellectual and learning impairments, as the model is self-explanatory. There are also tactile models made by students themselves during their SUPW (socially useful productive work) classes. Cycle ball bearings from a local shop are used to depict the molecular structures of gases, liquids and solids. They have made number cards using grains, collected sticks to teach mathematics, used old PVC pipe and thread to demonstrate how sound travels, and used matchbox squares for algebraic concepts.

Another interesting feature of inclusive education is its 'child-to-child approach'. Students are encouraged and at times even assigned responsibilities for helping their classmates. Some students I met assist their visually impaired friends by reading out to them and by helping them reach school through a charted route. Many play outdoor games along with their physically impaired friends, and there are elders who help their intellectually impaired classmates with day-to-day studies. The teachers pointed out that children accept their classmates with impairments more easily than adults do.

The challenges

There has been a definite change of attitude among the teachers. Ms Ruma Banerjee, director of Seva-in-Action says, "The government school teachers are eager to learn the skills involved in inclusive education. Training has made the education system more sensitive and responsive and has demystified the whole area of special education."

Ms VS Geetha of Janshala adds. "For inclusive education to be fully realised, all government school teachers need to be trained." This task is

undoubtedly daunting. One strategy could be to include a module on inclusive education within the existing pre-service education training curriculum.

Since inclusive education is in its early stages, teachers require additional resource support. There are plans to set up four cluster resource rooms per block to give teachers better curriculum and pedagogic support. Janshala plans to bring out a handbook with model lesson plans for each type of impairment.

Teachers sometimes find teaching children with impairments a' slow and frustrating process, especially in a multi-grade environment where there are insufficient teachers. Yet many are willing to try and create possibilities where none existed. Questions about the sustainability of this model do need attention. Currently, the state education department aims to provide one MRP for each school within Sarva Shiksha Abhiyan.

Our goal of 'education for all' aims to create equal educational opportunities for every child, including those with impairments. Universalising inclusive education in government schools is a small but significant step towards this goal.

19. IMPROVING HEALTH AND EDUCATION

Sonal Zaveri

In a school in a crowded slum of Mumbai, children are engrossed in tracing the outline of their hand on a piece of paper. Some draw teardrops on the fingers and some draw smiles - some hands are laughing and some are crying! The laughing hands have clean nails, mehndi (henna), and nail polish. The crying hands have dirty fingers, scabies, and worst of all, in anger they curl up and hit other children! Some children draw laughing houses: houses that are dean, with no garbage in sight, where people care for each other. Others draw crying houses, and in groups discuss what makes the houses sad - dirt, alcoholism, shouting and fighting.

A unique programme that helps children not only learn about health but also internalise it in their hearts and lives, has become a success story in Mumbai's government schools. SeHAT began in municipal schools of New Delhi in 1986, as a small project on oral dental care. It later expanded its work to Mumbai, attracted by the reputation of the research office in the education department of the city's Municipal Corporation (BMC).

ScHAT approaches school health from a holistic perspective. The underlying conviction is that if schools become more health promoting, then both children and their families will gain greater control over health. Better health also ensures children's capacity to learn, and to attend school regularly. In 1996-1998, the first phase of the pilot project was implemented in 50 municipal schools in two wards of the city. This phase was judged a huge success. Another 43 schools from two more wards joined the programme in the second phase, 1999-2002. In its implementation, the programme is unique as it has forged alliances between BMC teachers and SeHAT's project staff; the department of education and the department of health; and other allied **NGOs.** The programme is funded by HealthLink Worldwide; it has the backing of BMC in infrastructure and human resource support; and it is planned, implemented and monitored by the research office of the education department.

The project implementation

For their work in Mumbai, the SeHAT team decided that especially for first generation learners, the primary school years would be the best time to introduce health-related learning. In these formative years, children are most receptive to learning from teachers. Simple knowledge of health-related matters did not seem sufficient to bring about changes in health-related behaviour. New teaching methods were introduced to improve the child's confidence and self-esteem. It was hoped that children would be empowered to take charge of their own health in school and home, and be less dependent on health care services, hi such an intervention, teachers were seen as key actors.

The project strengthened the teachers' capacities to teach preventive health and health-promoting behaviours. With the school as a focal point, they were encouraged to look at the larger arenas of family and community health. As young children need family support to bring about change, the core message was that health is- 'our' concern, and not just 'my' concern. The project oriented, trained and supported resource persons, master trainers, head teachers and teachers. During the induction training, they were all introduced to lesson planning and making teaching aids. They learnt that in each session, teaching should be limited to 20 minutes, and the rest of the time used for participatory activities.

The BMC on its part supported the innovation by deputing administrative and teaching staff for the project. Beat officers and school supervisors were

given an orientation so that they could provide onsite supervision and report on the effectiveness of the project. SeHAT also established a resource centre for teachers and developed teacher and student workbooks in Marathi. Teachers find the resource centre useful as they can query a resource person at any time.

A holistic health programme

The ten steps for bathing:

1. *Take a bucket of water.*
2. *Pour water on the body.*
3. *Scrub body (because there may be loose dirt - this step is not usually followed and children are often surprised that it is needed)*
4. *Pour water again*
5. *Take soap and scrub body*
6. *Put soap back in the soap dish*
7. *Pour water on the body*
8. *Check if soap is cleaned from difficult to reach places such as behind the ear*
9. *Take a towel and dry the body*
10. *Put on the clothes.*

Teachers and children are encouraged to add on as many steps as they like, e.g., one school added oil the hair; another said dean the comb; in another school, children added 'check that the tap is firmly closed'.

Health-related modules were developed for the project, and included participatory and activity-based learning. Class 3 topics include 'Bathing' and 'Healthy Thali'; and Class 5 topics include 'My school, my health' and 'My home, my health'. In the lesson on 'My school cleanliness', each group has the responsibility of looking after one part of the school. If it is kept well, the whole class congratulates them. In one school, one of the classes was found with litter. The SeHAT class children picked up the litter and put it in a box, which they gift wrapped and sent to the offending classroom the next day. When the 'gift' was opened, the message drove home the point without any words!

Each year, the children of Class 5 are organised into groups and encouraged to take responsibility for different aspects of health: physical, mental, social, religious and emotional. One year, the group in charge of religious health collected articles from newspapers about various religious events, kept a track of them, and conducted activities around them. In Maharashtra, on Gokul Ashtami, the birthday of Krishna, human pyramids are made on the street to reach the pot of curds hanging high above. In the school this festival was celebrated without the pyramid, but with an emphasis on the curds and everyone joining together to eat it.

The group in charge of social health congratulated a class that had done well in sports, and sent a SeHAT get well card to a sick child. As it is customary to share food and be hospitable. Salad Day and Green Vegetable Day were instituted and celebrated in the school. Through these events, children learnt to bring healthy food and also to share it. There have been instances on birthdays, when instead of distributing sweets, children have shared gram, fruit pieces or cucumber! One of the teachers observed: ‘’Parents used to give money for Tiffin and did not bother about what children ate. Now children, even if they get money, are able to choose the right food from the vendors. They are more likely to choose fruit. They ask parents to cook, and teachers reinforce this healthy habit and encourage them to bring leftovers from the night before - this is far better than eating from street food vendors. Because of healthy eating habits, children now have a regular healthy routine. Earlier, it was such a problem: children would come to school and immediately ask to go to the toilet. Now they have set a time for this and children finish their bowel movements everyday at home and then come to school.”

Children enjoy the SeHAT classes which are held once a week. “We do not like to miss the SeHAT class and like to come to school, we like taking a bath and acting this out very much”. “We have a cleanliness box in school and after Tiffin we use soap to wash our hands, and then we comb our hair. We are then ready for the SeHAT class. We bring a hanky from home.”

Transfer of knowledge

Teachers encourage children to share their experiences and acknowledge their new ideas - just as teachers themselves receive a lot of positive feedback from project supervisors. Children also talk about what they do and enjoy, by writing to pen friends, or in meetings with class children who are not part of the SeHAT project in the school.

SeHAT Day and SeHAT Jatra are celebrated in all the participating schools. On this occasion, children showcase what they have learnt through the year. Children and teachers from the entire school, as well as community members are invited to attend. Parents are also encouraged to conic to school, sit at the back of the classroom, and observe SeHAT classes if they so wish. This has led to better parent-school interaction.

A place for health education

Among the many initiatives to improve the awareness of, and quality of health among school children, SeHAT's efforts are noteworthy. While many interventions have been initiated primarily by the health sector or by the education sector; this is a case of joint ownership, and a synergistic partnership to improve both health and education outcomes in the school. The evaluation of the pilot phase was conducted in 1998, and had suggested that there was a marked improvement in knowledge and awareness of health issues among students, and an enthusiastic acceptance of the progamme by both teachers and parents. With the project phase ending in 2002, the programme is at a critical juncture. To incorporate this innovation into a larger curriculum change so that it benefits all children, not only in Mumbai, but also in the entire state of Maharashtra and perhaps beyond, is the central question. Initiated, supported and strengthened from within the educational system, the SeHAT experience has potential to move beyond lessons learnt - but for this it needs the active support of curriculum planners and policymakers.

20. DEMYSTIFYING HEALTH

Sonal Zaveri

Many committees have identified the need for a comprehensive school health programme. Yet in reality, school health has been confined to health check-ups and mid-day meals. Health-related lessons in textbooks only encourage rote learning and seem to have little application in daily life. The School Health Education Programme (SHEP) was initiated in 1988 by the Foundation for Research in Community Health **(FRCH),** out of a concern that schools should emphasise health education that is relevant to children and impacts their lives. The programme, supported by the Ministry of Human Resource Development, New Delhi, and the Department of Education, Maharashtra, was conducted in the Shahpur *taluka* of Thane district and Mumbai suburbs. The 20 rural and 14 urban teachers who were

trained in this programme represented a cross section of the teaching community, in rural and urban areas.

The project hoped to demystify health and disease by encouraging teachers and students to take an active interest in their own body and in their community. It was assumed that the knowledge of health and disease shared with teachers would reach the students. By making teachers and students aware of existing medical services and how best to utilise them, the project further hoped they would learn to avoid the indiscriminate and irrational use of medicines and injections.

The project began with a small pilot phase - with Class 5 children in one school - so that project personnel could have a first-hand experience of teaching health to children before training the teachers. The teaching-learning methods encouraged children's natural curiosity and inquisitiveness, and emphasised group learning where children shared their experiences regarding health. Problems were posed in the form of stories; and games such as twenty questions were devised to get children to think about health and issues related to it. When it was found that the standard terminology in the textbook was difficult, simpler equivalent words were used.

The child's body: a teaching aid:

Children's own body was a teaching aid. For example, the heart was drawn on the body of a child indicating the exact location and size. Children heard their own heart beat; felt their pulse; used a magnifying glass to observe teeth, hands, skin and flies; and used a thermometer. Out of 55 students, about 40 had TV sets. Only four had a thermometer at home.

This preparatory exercise with children helped to shape the curriculum for health education. It included physical as well as emotional, social and intellectual aspects. It gave health education a socio-political dimension rather than emphasising only individual behaviour. It was visualised that the school could be the centre of a broad range of activities in health education carried out by teachers and children for themselves and for the community. The curriculum included a comprehensive perspective on the etiology of disease and knowledge and skills to prevent disease. It equipped teachers and children to make decisions and take actions that would positively influence their own and the community's health. It consciously moved from instructional hygiene and nutrition to a more comprehensive health education that addressed attitudes, values and skills.

School **health curriculum**

• **Human body structure and functions:** evolution of man; human anatomy and physiology; growth and development, body care, personal hygiene; care of sensory organs

• **Food and nutrition:** improvement of food value; basic constituents of food; prevailing food practices (e.g., 'hot' and 'cold' food}; methods of preparation and preservation; how to identify deficiencies, scarcity and famines; safe and unsafe water

• **Diseases and defects:** common diseases such as diarrhoea, respiratory infections, TB, worms and skin infection: home remedies, first aid

• **Environment, responsibilities, habits:** community and personal hygiene; sanitation inside and outside the school and campus: latrines; destroying breeding places of mosquitoes and flies; safe and unsafe drinking water; playground safety, road and home safety.

Following the pilot programme, a year was devoted to training the teachers through 12 two-day workshops, and three residential workshops. Both the curriculum content and methodology were taught, including communication skills, understanding topics like sex education, preparing teaching aids, and using health manuals. The sessions were very interactive, not only to communicate more effectively with the teachers, but also to introduce them to methods that they could take back to the classroom later. Unfortunately, live classroom demonstrations could not be included. Teachers were also taught to conduct health check-ups, but it seemed that learning the skills involved was far more complex than had been envisaged.

Some effective teaching aids

T-shirts painted with fabric paints showing the anatomy (these were later abandoned because of the expense).

Posters were made by enlarging pictures from books

Pictures and display boards were made from thermocol sheets and black cloth

Audio tapes were used in sex education and helped to overcome teacher inhibitions

A hand lens and portable microscope were used to teach simple lessons much as 'dirty water' through scientific demonstration and observation

Poems and songs specially produced for the course were very popular

Simulating real situations made learning memorable. For e.g. when teaching about cuts and wounds, red ink was used for blood.

The Med-Kit

Paracetamol 500 mg, Chlorpheneramine Maleate, CPM 2 mg, Ibuprofen 200 mg, Mebenlazole 100 mg, Furazolidine 100 mg, Gama Benzene lotion, First aid for wounds

Following this training, for the next two years the teachers conducted health education lessons and activities in their schools. About one period every week was allocated for a health education class. A new model of students' health check-up was introduced. The teachers examined children clinically, screening them for major ailments. Common ailments were treated with the help of a medicine kit (Med-Kit). During the course, the teachers' own health skills improved dramatically. All through this phase, the FR.CH staff visited the schools and participated in activities, closely monitoring and evaluating what was going on.

Resources for teachers and children

The project also included the development of *Hitguj* (dialogue with empathy), a monthly newsletter for teachers, sharing their health education activities and experiences. This was immensely popular, particularly in the rural areas. About seven issues were produced. A set of four manuals for teachers and students of Classes 4 and 5 were produced. A few topics were field tested by teachers and critically reviewed at the teachers' workshops. Later on, teachers not involved with the SHEP project also tried out these manuals during field testing. Similarly, children's workbooks for Classes 5 and 6 were produced to support the teacher manuals, and included fun exercises such as drawing and colouring puzzles, labelling diagrams, and so on.

Not only the teachers, but the children too appeared to enjoy their health education sessions. They could relate to many of the local concerns that the curriculum included. In one of the schools in Shahpur *taluka,* Thane district, the children had learnt how water in the well gets contaminated. The village women used to wash clothes and utensils near the well which was also a drinking water source. The children conducted a *Prabhat Pheri* to raise

awareness about the issue. They also put up slogans near the well. Some children placed a washing stone at some distance from the well. Others stood vigil and made sure the women of the village understood why they need to wash clothes and utensils away from the well. The women reported that the children were quick to spot if anyone came near the well for washing, and did not leave until such offenders shifted away from the well.

When the children saw the teachers' newsletter, they demanded something for themselves; and a wall paper, *Dhasta Pushta* (Hale and Hearty), was born. Four issues were published and sent to all the schools. The wall paper had line drawings by children - not perfect but disproportionate and naive, as children's drawings are. There were stories and poems. Some of the topics written about included 'kitchen garden', 'scabies', 'head lice' and 'my school'. The children coloured the drawings and proudly displayed them in their classrooms. Later, many of these were used in the healh education manuals.

Evaluation and impact

In 1992, as the project was reaching its end, it was evaluated applying several methods. Observation of lessons and activities and correspondence from teachers regarding their activities in school supplemented the baseline and end project studies undertaken by FRCH. In addition, teachers were asked to write essays on the importance of health education, causes of ill health, and malnutrition in children; to understand if any change in perspective had occurred. It seemed from this data that about a third of the teachers excelled in their activities. About half the teachers had used teaching aids consistently, and many had used local resources too. More than half the teachers were also sensitive to the importance of the participation of girl students in the activities. They also found that women teachers in both urban and rural schools outperformed their male counterparts. The teachers working in remote villages performed better than those working at and near the towns. In terms of health learning, rural children performed well in information, perspective and application.

Critically reflecting on what is acknowledged as a success, Dr Mohan Deshpande, who coordinated the project along with Vaishali Vaidya, felt that the teaching-learning exercises could have been more child-oriented. They also realised that instead of waiting for teachers to learn completely and accurately before implementation, a more parallel process of learning and transfer to the classroom could have been adopted.

In its curriculum for teacher education, the State Council of Educational Research and Training (SCERT), Maharashtra, had identified health education as a separate subject and delinked it from physical education. Later, FRCH introduced the SHEP learning's, manuals, and health curriculum in the pre-service teacher training of 52 DEd colleges in four districts of Maharashtra. This happened between 1994 and 1997.

The SHEP project closed in 1992, having evolved a workable model for health education in both urban and rural schools. Certainly the project model lent itself to upscaling. Dr Kaul from Delhi, who visited some of the schools as an external evaluator of the project, asked the children if they would like to mention anything special to him. The children from Class 6, aged 11, asked him to convey a message: "When you reach Delhi, will you please meet the Prime Minister and request him to introduce health education like what we have here, in all the schools in the country?" The children were asking for a leap of faith by the slate. FRCH's experience in the School Health Education Programme presents a persuasive case for a strong policy move to make health education an integral part of the curriculum of schools all over the country.

21. WINDOWS BETWEEN SCHOOLS AND SOCIETY

Ira Saraswat

Nothing in the classroom sets it apart from any other rural government school. Nothing at first sight, let us say for this impression is soon erased.

This is the Government Middle School in Uda, Harda district of Madhya Pradesh. The lesson being learnt in Class 6 is *Aao Maanchitra Banayen* (Let us draw a map). From the book, one of the children reads out a step-by-step account of how to go about making a sketch map of the classroom. The teacher gently encourages them to observe then-own classroom and try the exercise.

The class begins to make a sketch on the blackboard. The excited bustle dies down as the children notice that one of the girls is adding what resembles two windows on the side depicting the north wall of the room. Children whisper to each other as the teacher tries to discuss the obvious 'mistake' suggesting that there are two doors but no windows. The other children smirk as the child continues to draw undeterred. This time the teacher lets her complete and once she has finished, asks her **to** show the windows she has drawn. Up goes the child's hand pointing towards the ceiling. Just below the high ceiling are two big window-like ventilators!

Changing views on learning

The teacher, Shobha Vajpayee, divides her class into groups of five or six children, and soon everyone is engrossed in measuring the length and breadth of the classroom to draw a map to scale. She took a moment to share with me her reflections on the episode that had just taken place, and she was quick to acknowledge. "Had it not been for the training I have received, I would certainly have interrupted the girl. The training has helped me learn to respect *what* the children are saying and be receptive to the *why* of it". Shobha was referring to the trainings organised by the NGO Eklavya, as part of their Social Science Teaching Programme (SSTP). This is an educational innovation that is being tried out in eight schools of Madhya Pradesh. She felt that this exposure had greatly influenced her teaching not just in social science but in other subjects too. *"Isney to nazaria hee badal diya,"* (It has changed my entire way of looking at things) she exclaimed, saying that now she is able to look beyond rote learning and exams and understand that in every subject there is scope to discuss the social and attempt the practical.

Not a happenstance

Another day, another classroom, this time in Jasalpur, some seven kilometres from Hoshangabad. This is also one of the eight schools where Eklavya's SSTP is being implemented and is a frequently visited school, much to the annoyance of the teachers. The chapter being read in Class 8 is about villages in the Mughal period. The narrative is easy and accessible. There are also several pictures depicting life in the villages in those times. Questions included in the text and raised by the teachers and children create a lively discussion on the lifestyle of the farmers and the nobles. As they move along the text, one of the questions invites them to reflect upon today's reality and contrast it with what they have been reading: 'What could the reasons be for a higher production *of ghee* in those days?' Children prefer to talk about the consumption patterns rather than simply link it with a higher production of milk.

They attribute the decreased production of *ghee* to the presence of hotels. More specifically they link it to the increased consumption of milk in *'Chai kee hotelen* (the tea-shops), on account of which milk is transported in large quantities to the sides. They assert that even today, if milk is not sold and consumed in making tea, the production of *ghee* could increase. A simple

question has spurred a lively discussion, an analysis and comparison of the two different times arid realities.

Obviously such discussions are not happenstance or unintentional. They have been purposefully and carefully planned for in the social science curriculum of Eklavya.

Eklavya and the legend of learning

Inspired by the legendary learner, Eklavya is a group of people committed to working towards social change through education, and striving to create alternatives in education. They are actively involved, for almost two decades now in designing innovative curricula, teaching methodologies and educational material for science, social science and primary education. These have been integrated into the government school system in Madhya Pradesh and also some private schools. Eklavya was the first, and continues to be among the few **NGOs** that have been allowed access to work in government schools for quality improvement.

In 1986, Eklavya began the ground-breaking task of making the school social science curriculum more meaningful and interesting for children. Over the years a curricula for Classes 6, 7 and 8 has evolved. This social science curriculum is designed to increase the student's ability to read and also study and search for information. It is structured to encourage students to interpret and evaluate different kinds of information, to enable them to determine the validity of information and arguments, and to develop a well-reasoned understanding of events, ideas or processes.

A variety of strategies and techniques are used which include the use of pictures, maps and diagrams, original historical evidences and structured discussions. All these are aimed at taking learning beyond mere acquisition of information towards the acquisition of skills. Questions inserted in the text are designed to evoke curiosity and at the same time invite reflection and analysis. The language used is simple and the text is very readable. The use of many interesting pictures, ranging from imperial Mughal paintings to contemporary photographs, is an important aspect of learning materials, and provides a new dimension to learning resources in the social sciences.

There has been an attempt to consciously move away from the classical obsession with definitions and concentrate on creating flesh and blood images. The contents of the textbooks are structured around the environment and life of learners. This is done to enhance the students' ability to construct new knowledge and actively relate to it. In the textbooks there are often

references to local topography which are used to build and reinforce concepts - the concept *of* plateau and plains is explained through the descriptions of nearby villages in Class 6 lessons *Maidan ka ek gaon-Kotgaon* and *Patthar ka ek gaon - Balampur.*

This is recalled later in Class *8* while dealing with the evolution of agriculture.

Beneath all these lies the effort that has gone into making difficult choices over content. The themes, included and elaborated in the text, were selected through a process of careful and deliberate consideration. In a subtle and honest way there seems to have been a redefining of curricular agenda in favour of a social change. This is reflected in the coverage of political, social, economic and cultural life, which moves away from portraying a glorified self-image. Perhaps this is the first example of an Indian school textbook which is not a profile of the stale but which presents a realistic and pluralist image. The life of a peasant is given space alongside the life of a king. Both the functional and conceptual are counterpoised and aspects like bank transactions find space alongside abstract concepts, such as the government.

New ways of teaching and learning

This revolution in the textbooks is supported by a comprehensive teacher training, a suitable evaluation methodology, and administrative structures of follow-up.

Following in the footsteps of their Hoshangabad Science Teaching Programme, Eklavya has made learning by discovery, learning through activities, and learning from the environment central to social science teaching and learning. Obviously the teachers need to be very well prepared and equipped to engage in these processes. This is facilitated through integrated trainings in both content and methodology. These trainings enable teachers to become participants in evolving and implementing the curriculum; they are also invited to reflect upon the suitability of proposed revisions in the textbooks.

One such training organised in June this year saw teachers - some who have already been trained and are practising, as well as others attending the training for the first time - transforming into learners. They flipped through the atlas; traced out rivers, measured distances, asked each other questions, focused on the assigned tasks, and resolved their confusions and doubts collectively and individually. Besides giving them an opportunity to

internalise subtle concepts, the training also dealt with operational aspects like organising children into groups for collaborative learning, and managing time to ensure that these training experiences translate into action in the classroom.

In addition to these intensive orientations the Eklavya team provides regular back up support at the classroom level through school visits and monthly meetings. The school visits and the feedback systematically collected from the teachers and children and reviewed by scholars, serve to further strengthen, evolve and refine the curriculum.

Islands waiting to be a continent

Traditionally, social science with its information-laden content has been looked at by most of the teachers as a chore which they are barely able to complete by the end of the academic year. Although there is an information overload, teachers also often feel there is nothing to teach in it! The Social Science Teaching Programme of Eklavya has demonstrated the contrary. There are also expectations that this programme would be implemented widely. Curiously though, it has been limited to a showcasing in eight schools in Madhya Pradesh.

When Eklavya started with the innovation, the idea was not to create islands of excellence but to contribute to the entire system. This was partly the rationale for intervening in the government system. Fifteen years since, the government's reluctance in taking this forward implies that many thousands of learners in other schools are deprived of good material and learning opportunities.

But this impediment has not weighed down the group. They are now engaged in developing a curriculum for high school and are taking the material to schools and teachers and giving them a choice to try it out. A number of public schools in Indore and Chandigarh have begun to use Eklavya books. A large number of teachers of government schools too have shown an interest in the material and have volunteered to undergo the training. Eklavya is encouraged as the response of the teachers has been very positive.

If they succeed, more children in more schools would discover windows where none existed before!

Development of the social science curriculum

The curriculum is designed to help learners face reality. A pertinent question in this regard is "in what frame does one leant to lace reality?" With what values? Teachers and students come to the classroom with strong ideological leanings. While they may not object to factual 'objective' representations they do feel disturbed by references which may have judgmental undertones on subjects they feel strongly about. We often had to take into account their sensibilities and reformulate our chapters in such a way that the idea was conveyed in a well-rounded manner! For example, while asking children to make a list of the food items of the Aryans it had been left to the class to infer that the Aryans ate meat as well. The chapter did not clearly state it but the inference could he drawn from the fact that they did not practice much agriculture and herded a very large number of cattle. Still the teachers would never on their own infer this and never add beef or meat to the list of food. When we brought this up with them they categorically told us that they were not in a position to do such a discussion with the students. We could conduct the discussion ourselves if we wanted to! Realising the fragility of the situation we added a whole paragraph on the sensitivities related to beef eating and how one has to look at it in a historical manner, when we revised the chapter. Still, well-wishing teachers and university scholars advised us that it may be worthwhile to avoid deliberate highlighting of such sensitive matters. Finally we took the suggestion to make the reference to meat eating among the Aryans in the text, but in a matter of fact manner, in the course of the narration. That is how it is being taught now for many years.

Rashmi Paliwal and CN Subramaniam, Elvavya

22. A SEARCH FOR TOLERANCE

Gauri Salvi

Mumbai's communal riots of 1992-93 shook the city to its core. Unprecedented violence left a swathe of destruction in its wake. Mumbai needed more than a healing touch, not merely for the physical damage done, but to soothe the minds and hearts of its people which were scorched by an auger and hatred that they had never dreamed existed in their midst. What was perhaps most worrying was that this animosity also infected the psyche of children. Tender minds that had hitherto been ignorant of divisions of caste and creed now began to slot friends and neighbours into categories based on religion - into adversarial distinctions of 'them' and 'us'.

In the midst of the mayhem, one group - Sabrang - spotted this alarming development and decided to do something about it. In August 1994, Teesta Setalvad, founder of Sabrang, activist and editor of 'Communalism Combat', initiated Khoj, a programme of educational intervention, aimed specifically at clearing these prejudices from the minds of Mumbai's school children. Setalvad's research revealed that even schools which had prided themselves on being secular were seeing the poison of communal hatred corrode their classrooms. With the help of consultant volunteers, and the active cooperation of the principal of Bombay International School, she started a weekly, one-period programme with students of Classes 5-7 of this school. The objective was very clear: to explore and evolve ways of removing biases among children through education.

This unique programme began as an individual, non-funded effort, focusing particularly on socio-historical research. Between 1994-97, Khoj limited itself to what Setalvad refers to as the 'honeymoon schools' - Mumbai's elitist, upper middle class schools. By the time Khoj was into its fourth year, the programme was extended to a number of middle class schools and a little later to schools run by the Brihanmumbai Municipal Corporation (BMC), which included Marathi-medium and Urdu-medium schools.

Khoj modules

During the initial years the Khoj team researched and created modules for intervention within the social studies curriculum of schools. They soon found that the existing methods by which history is taught to children are excruciatingly boring and out of touch with reality. Textbooks are unexciting, extolling the virtues of 'non-violence' and *satyagraha* in a tedious manner that can never engage and absorb children's minds. "Do we really believe that we can teach non-violence to children without exploring the human being's innate tendency to anger and violence, and the consequences of that for herself or himself and *the* victim?" asked Setalvad.

The answer lay in creating modules which were grounded in reality so that they could deal with the conflict within the classrooms which, after all was only a reflection of the larger and deeper conflict taking place in the fractured society around these children. Khoj did not want to try out something that was academic, idealistic and 'merely in the head' and so the team evolved modules that were applicable in Indian classrooms, taking into

account the size of the classes, the backgrounds of the students and other similar factors.

Teaching history in new ways

"We had to tackle all these very emotional influences and we decided to do this through *the* teaching of history," says Setalvad, who is herself, passionate about the subject. The approach that Khoj took was to teach history to these students in a more animated way - especially those parts of history that have long been shrouded in mystery. "It was an effort to evolve a comprehensive course that deals with misconceptions and biases, revitalises the teaching of history, and explores diversities. And we had to do ail this while creating space within the classroom and the existing school framework for discussions on issues of tension and conflict."

For instance, subjects such as 'harmony', 'tolerance' and 'respect for diversity' were dealt with through frank discussions of the actual absence of these attitudes in society. Today, the Khoj team is convinced dial this linking of social studies to reality is what actually bore fruits.

"It is not to say that within weeks of waving this magic wand the children understood our goals," Setalvad acknowledges. On the contrary, it was a long, hard struggle of patiently chipping away at deeply entrenched biases. What did happen, however, was that within a few years, children began asking questions about the society they saw around them, about their teachers and their parents. They had never done this before.

The new, stimulating approach which Setalvad and her volunteers used to teach history - including the history of world religions, local history, sub-continental history and modern Indian history - quickly generated enthusiastic interest in a subject which had hitherto failed to inspire students. Evidently, merely giving lectures on communal harmony or on the sameness of all religions, or going through the motions of celebrating festivals together does not achieve much. As Setalvad says, "What credibility can adults have with children if they simply lecture on the need for peace and harmony, without creating the space for an honest discussion on violence in society and examining why it occurs?"

Listening to children

Illustrating this point is the recorded experience of Khoj volunteers with children, on some of their modules. These modules link children's concept

of and relationship with God. During these modules, a two-minute cassette with a collection of religious music - the Parsi *kushti* prayers, the *azaan* (muezzin's call), the Vaishnavjan *bhajan,* choir from a church, the recitation of verses from the Guru Granth Sahib-are played to the children. After this, names of the ten different Indian coinmunities - Hindu, Muslim, Christian, Sikh, Buddhist, Jain, Dalit, Brahmin, and Jew. Parsi - are listed on the board and the children are asked to write their observations of these and also say what 'religion' means to them.

When expressing their ideas, notions and relationships with God, children are found to be 'idealistic and searching'. Many questions to God are disturbing and ask why there is poverty, violence and hatred, expecting God to have all the answers. However, the Khoj team also found the children's abstract response to God is at odds with their observations about different communities. "And it is this critical and qualitative difference in responses dial we need to understand very clearly, if we are to make any real progress on imparting a sense of celebration of diversities and differences," Setalvad points out.

The contradictions that were reflected were an eye-opener for the Khoj team when in the year 2000; they studied over 2,000 responses of children to this module from a broad spectrum of Mumbai's schools. Preconceptions and stereotypes were found to be deeply ingrained, and their sense of 'nationalism' had a very close connection to religion and language.

For instance, in their observations about communities, many children said that 'Christians speak English and it is not an Indian religion'. The term 'Hindu' drew the most benevolent and unrestrained response, such as: 'the majority in India', 'Hindi speaking', 'open and tolerant religion', 'an ancient community', 'the most important religion'. While the children had a fair knowledge of the terms 'Sikh' and 'Jain', most of them had only a very superficial knowledge of other smaller minorities like the Par sis, Jews and Buddhists.

However, it was the word 'Muslim' which drew the most negative responses in the non-Urdu medium schools. Some of the typical observations were:

"Islam is a good religion but its people are angry". "My friend is a Muslim but everybody says if a Muslim is your friend you are not an Indian, you are a Pakistani." "Muslims eat goats and chickens and if we say something to the Muslims, they show a knife to us and we die." "They wear black colour clothes." "Muslims pray very loudly"

Setalvad maintains that it is very important to be able to draw out such responses before embarking on any discussions on the religions of the world and other related issues. It is only after understanding how and why the biases have entered the mass psyche, can effective interventions he generated to counter them.

One of the most important steps in trying to understand society is of course, trying to understand where the individual fits into this larger scheme. Towards this, another of the Khoj modules encourages the children to create a self-portrait through drawing and writing and then to look back into the child's own family history and explore where they came from originally and what brought them to Mumbai. This exercise itself throws up a variety of critical issues for discussion - issues of roots, migrations, professions, domicile, and citizenship and so on.

In this same module of etching out their self-portraits, explains Noorjehan, a Khoj volunteer in an Urdu-medium BMC school, "We ask leading questions like 'What do you like and dislike? What makes you angry and happy? What do you hate and love?"' The replies are significant and often lead to much productive discussion and self-examination. Other activities, such as enacting plays, are often used to allow the children to express their emotions and then understand the real situation.

All these modules are clearly in character with the chosen strategy of Khoj which has always been to work within the existing system after first understanding it and then critiquing it. The motive is not to preach but to get children to question and then to think matters through and think of answers. Over the years, the Khoj modules have expanded to cover the area of gender, caste and class prejudices as well.

Mainstreaming the intervention

In the early years of the programme, Mumbai's upper middle class schools did seem to substantially internalise the Khoj approach. The task has been a little more uphill with the other schools. Following a series of detailed presentations on the project and the curriculum content, the team began working in BMC schools from 1999. This has been a major break through for the Khoj team, and every year they submit detailed reports to the BMC and work closely with its Education Officers to ensure that permission to continue is maintained.

In 2003, the programme runs in 29 BMC schools. Setalvad feels that if Khoj can stay with Mumbai's municipal schools for another two to three

years, thus imbibing a five year experience, then the group will be in a position to try and persuade the state board to adopt Khoj more extensively. "All these years we have tried to understand the dynamics of the whole system and to then try and impact policy. Today we have reached a stage when our study has been so thorough that we can comment on the education system as a whole."

What is very clear is that Setalvad and her team want lo mainstream Khoj and not continue as just another non-governmental organisation. This is very crucial to the project's vision and towards this end; they have been running teacher training programmes across India. Already, over *90* workshops have been conducted in seven states. And. perhaps, given today's socio-political milieu, there could be no more heartening news than that they have been granted permission to run Khoj in four schools in Gujarat.

Future directions

H there is one area where they need to concentrate more, it seems Lo be on ways of involving parents and tapping their tremendous potential as a group. In Mumbai, there are already around 500 teachers who are staunch supporters of Khoj, and if parents too could be brought in, the pa rents-teachers combine could become a force to bring about social change. For a programme like Khoj needs all the support that it can garner in its attempts to create among school children an atmosphere of true understanding and tolerance.

"Do we or do we not genuinely believe that tolerance is also about all Indians enjoying the same privileges and the same rights?'' Setalvad asks. "If this notion of sharing and equality does not enter into our definition of tolerance, we cannot contribute to the secularisation of society and its institutions, whether it is the school, the college or the home."

23. HAND IN HAND WITH SANGATI!

Swati Dandekar

LJn a rainy August morning in Mumbai, the dilapidated building and sodden grounds of the municipal Urdu high school at Dharavi cut a desolate picture. The rains had kept several children away from school, and Saadiqua Harnekar's 37-strong class was three-fourths full. Saadiqua, a bright cheerful woman teaching Class 7, was this morning busy preparing for her *sangati*

lesson. On her table was a beautiful, well brought out picture book and a teacher's guide with a story and points of discussion.

Sangati is a supplementary curriculum that attempts to make a connection between what children are taught in schools and what they see around them. It provides children with a way of drinking, a means of interpreting the world and making sense of the range of experiences they face in their growing years. Developed by Abacus, a Mumbai-based NGO, and monitored by their staff regularly, in 2004 sangati lessons are being held twice a week for an hour in 180 municipal schools in Mumbai, and 120 government schools in Yavatmal and Chandrapur districts of Maharashtra.

Saadiqua began by recapitulating what they had done in the last sangati class. She spoke of family structures, how adults often impose decisions on children, discrimination against girls, and the story of Maya, the girl who made her wishes known and insisted on being sent to school. Through all this, the children listened quietly. She then moved on to the topic for the day-a story about two adjoining villages: one Hindu, the other Muslim, and how children from both the villages bring its suspicious and fearful adults together. As she held up the colourful pictures of the story, children listened attentively. The question and answer session dial followed elicited a lukewarm response from the boys and none from the girls. No amount of cajoling helped.

Saadiqua said that the children were usually more responsive, but the presence of a visitor had made them diffident. She has been teaching this curriculum for two years, enjoys it, and feels that children respond more to things that relate to their experience. The complementary nature of the sangati curriculum has made the teaching of regular subjects easier, she feels. For example, sangati speaks of social justice, and in civics they learn about the rights and duties of citizens. However, she finds it difficult to do the activities as laid out in the guidebook. She is always short of time and has to hurry through some of them in order to 'finish' the curriculum.

Most children going to municipal schools experience problems such as domestic violence, squabbles over meagre resources, and discrimination against girls at home. Outside, they see communal tensions and riots, discrimination against castes, economic inequality and social injustice. Bewildered by these experiences and deeply affected by them, children, above all, need an opportunity to talk, express what they feel, offer opinions and clear their doubts. However, these issues rarely feature in a school syllabus, because they do not belong to any one 'subject'. It is in bringing

issues that affect children's lives into classroom discussions that the strength of the sangati curriculum and approach lie.

The sangati curriculum - content and methodology

The curriculum is divided thematically into six kits, two each for classes 5, 6 and 7.

Kit 1: Myself, my body, our needs

I am unique, yet I share something with all human beings. The potential and limitations of my body. All human beings have the same needs.

Kit 2: Our earth and the web of life

Our earth provides resources that fulfil our needs. All life has evolved as a complex and continuous process. We are a part of the web of life.

Kit 3: How societies developed

How people learned to use resources and live in societies. Understanding our own lives by understanding how societies developed.

Kit 4: The way we live

Continuing changes in all spheres of life influence the way we live today.

Kit 5: Understanding change:

Understanding changes that affect our lives and dealing with them to create a better society.

Kit 6: Preparing for our future

Exploring alternatives as individuals, for our society and our earth.

Each kit is divided into sessions that deal with different aspects of the theme. For example, Kit 4 - "The Way We Live', is designed as 19 hour-long sessions. There are two sessions on family life. One deals with the concept of family, what it means, its purpose, and different kinds of family structures mat exist even in faraway places such as Ghana, where a husband and wife do not form the basis of the family. The second session deals with various problems that families have, some age old, some caused by the changing milieu - violence towards children, ill treatment of older and non-earning members, discrimination against girls, and even squabbles over watching TV! Each problem is personalised by turning it into a story of a child. Teachers or facilitators are asked to elicit responses from children

about similar experiences they may have had or seen around them, and how the situation could be resolved. The kits contain picture material - flip charts, posters, illustrated stories and games. A teacher's guidebook gives background information on the topic and suggests activities and points for discussion. There are handouts and worksheets for children. These worksheets, unlike the regular curriculum, are not intended for content recall. Instead, they encourage children to think about what they have learnt, ask questions, gather information and ideas, form opinions, and write about them.

How it began

The Abacus team tells the story of sangati. Its genesis goes back almost 50 years and lies in the multi-faceted personality of Shanta Gandhi - educator, dancer and theatre person. In the 1950s, while studying tribal dance in Gujarat, Shantaji began teaching children. She tried to answer the many questions they put to her using theatre, dance and the arts, and found that it worked well. Later, she experimented in a formal school in Ahmedabad developing a new curriculum. During her days with Bal Bhavan, she tried to turn it into a place where children could learn through play. This was a formative period for what was later to take shape as the sangati curriculum. In 1990, she strongly felt the need to form a group that would carry on her work. This team has now been through more than a decade of committed work. Actor Ratna Pathak Shah, artist Deepa Balsaver, law student and publishing professional Deepa Hari, and filmmaker-activist Simantini Dhuru – all of them were influenced by Shantaji's ideas, and their personalities arid skills in turn influenced the way the curriculum evolved.

"It was all there in her head. She knew exactly what she wanted and we would listen to her mesmerised," says Ratna, who taught the very first sangati class. "Sometimes, there were no words. She acted out her ideas, her vision...," says Deepa Balsaver, who drew the pictures and developed art material for teaching. "Organising all the material into hour long sessions was a big challenge. Its strength was that the ideas were interlinked, which also made it difficult to divide them neatly," says Deepa Hari, who developed the content.

Implementation, response, and growth

The project began in 1991, with support from the Ministry of Human Resource Development, in one school - the Mahalakshmi Municipal Hindi

School. The curriculum was wider then. It was to run for five successive years, its progress monitored and impact assessed.

The Abacus team members who taught the curriculum were not trained teachers, and the open-ended sessions did not always go as planned but it was a novel idea and the approach worked. For the first time children were given a voice, encouraged to speak up, discuss, criticise, and offer their own ideas. "There were times when I would paint material for a new discussion point that had come up right there in the school corridor!" says Deepa Balsaver. Ratna, who taught the lessons then, recounts a discussion on shelter and space. "When we said that space cannot grow, can it, Bharat, a student from the class retorted *'paisa khilane se jagah badhti hai* (Space grows when you grease palms). From here, the discussion jumped to town planning. The floor was thrown open to children and they were asked to plan their town. They started off by putting in their homes. One said, my home would be here, the other said, mine would be next to him. They soon realised that they had left no space for public amenities, roads, gardens etc. Then they began all over again!"

This phase of the project ended in 1996. The Brihanmumbai Municipal Corporation (BMC) evaluators submitted a favourable report. Students who had been through the Abacus sessions showed an improvement in reading and speaking. BMC now opened 25 of their schools, and 35 other non-formal education centres decided to participate. With this, the project moved on to its second phase.

The decision to upscale necessitated many changes. The Tata Institute of Social Sciences had also done an evaluation of the project that found a distinct improvement in the students' performance. However, their report found the elitist art material impractical and inaccessible for teachers. This invaluable criticism paved the way for the future. The information overload was reduced and the content trimmed to fit into three years. The sessions were better defined and printed versions made available to the teachers who would now take the sessions. The art material was shorn off its elaborate elements so that it could be produced as printed picture books. The first phase had also revealed that while many teachers accepted the merit of the methodology and approach, there was some resistance to the content, particularly issues like caste and communalism. Abacus developed a teacher-training course to sensitise teachers to these issues and build their skills so that they may use the material in creative ways. From 1997 onwards, this phase was monitored by the education department of the BMC and by the Abacus team internally. Everyone concerned felt the impact of

the curriculum, and the project moved further into its next phase. More BMC schools were added to the Abacus list.

Relevance in changing times

1996-97 saw some of the worst communal riots in Mumbai. In the sangati curriculum, environmental issues began to take a backseat, and social and economic issues were emphasised.

‘’The class we are addressing is often at the receiving end of social inequality. It is necessary to convey to children that it is not enough to blame, it is important to take responsibility and see what can be done to change things for the better.” says Deepa Hari.

The curriculum addresses many relevant issues: the story of Eklavya and caste discrimination in modern society, how things are almost never as they appear in advertisements, or even the story of Jarnal Singh who does not wish to join the army like his father and uncle, but feels he can serve his country in other ways. The lucidly written guidebooks, the almost non-academic and friendly language, the use of stories, real and fictional, made the sangati material stand out as different. There are no platitudes. Factual statements, discussions and information linked to children’s own lives make it meaningful and empowering.

Classes of moral science, value education or work experience rarely attempt to address anything of significance, and remain loose periods that can be appropriated at will by anyone with an immediate need. Yet, the need to provide an education firmly rooted in basic human values is stronger today than ever. Done this way, through dialogue and discussion; equality, tolerance, dignity of labour, respect for nature, saving the earth’s resources - these are not mere words but become ideas that should and can inform our daily activities and our interactions with those around us.

Sangati at work

The possibilities of what this curriculum can achieve are evident, however a lot depends on what actually happens in the classroom. In a noisy Marathi medium school at Worli Naka, Lahu Rama Gode was teaching his class a sangati lesson on caste discrimination. He appeared to be a popular and effective teacher and could elicit responses from his students. However, the true story of Hero Kumar Bagh of Orissa who fought against discrimination did not seem to make much of an impact on them. While the teacher did

encourage them to narrate their own experience on the issue of discrimination, he seemed to be in a hurry to wrap up the lesson - and so the important process of discussion was short changed. Mr Gode complained that two or three projects run simultaneously in the school and teachers find it difficult to make time for all of them along with completing the regular syllabus. Although his students demand a sangati lesson whenever it is scheduled, he is often forced to skip through things.

Time has always been and continues to be a key consideration. Non-teaching duties and an unfavourable teacher-student ratio diminish available teaching time. A project like sangati is neither compulsory, nor linked to exams, yet it is demanding and requires commitment from teachers. Concerned about this, Abacus has put in place a monitoring system where their staff observes and records the classes. These weekly records, including testimonials from teachers and children, form an invaluable source of information for the Abacus team and for independent evaluators of the project. "Initially we were scared whether the sessions would go as envisaged; especially that that depended on children's participation. Teachers raised doubts about some of the topics, saying that children will never talk about these things in class, but the observations have put to rest all these doubts," says Simantini, who co-ordinates the entire project.

The future

Simantini thinks that the project has proved its merit and now it is up to the government to open all their schools and play a more active role. She is very hopeful that this will happen and that sangati will reach students of all 900 municipal schools in Mumbai, and more elsewhere. This would be possible only if BMC also evolves a way of monitoring the work, making an in-house project. Sangati will be taken more seriously if it is built into the school time-table in a more legitimate manner, in place of its current extra-curricular status.

Abacus can continue to supply the material to other schools and institutions. In taking sangati to rural Maharashtra, worksheets with rural examples were evolved. Kit 5 has sessions on agriculture, and on the impact of modernisation on the environment that pertain to their lives closely.

Since teaching methodology is inseparable from content, the success of sangati depends on the teacher being a progressive, sensitised human being. It can often be at variance with the views of teachers on what constitutes 'appropriate education'. The further sangati moves from the direct

involvement of Abacus, the greater these concerns. Abacus will need to focus on their teacher training programmes and design them in a manner that can be scaled up.

Sangati came into being as an effort to bridge the yawning gap between a regular school curriculum and the economic and social surround. From a jumble of exciting and ambitious ideas in Shantaji's head, it has come a long way in becoming a robust curriculum mat lends itself to wide use. The journey must continue on linear and lateral paths that touch the lives of more and more children and adults along the way.

Anganwadi An early childhood care and development centre run by the Department of Women and Child Development

AEP Appropriate Education Programme of the CWC

APF Azim Premji Foundation

APPEP Andhra Pradesh Primary Education Project

Basic Education A system of education proposed by Gandhi for the social and economic reconstruction of society; characterised by skill formation and attitude development

BEP Bihar Education Project

BGVS Bharat Gyan Vigyan Samiti

BJVJ Bharat Jan Vigyan Jatha

BMC Brihanmumbai Municipal Corporation

BRC Block Resource Centre

BVIEER Bharatiya Vidyapeeth Institute of Environment Education and Research

CAPART Council for Advancement of People's Action and Rural Technology

CEE Centre for Environment Education

CEMD Centre for Education Management and Development

CII Confederation of Indian Industries

CIE Central Institute of Education

CLR Centre for Learning Resources

CRC Cluster Resource Centre

CWC The Concerned for Working Children

DIET District Institute of Education and Training

DOE Department of Education

DPEP District Primary Education Programme

DST Department of Science and Technology

DSERT Directorate of State Educational Research and Training

EE Environment Education

EGS Education Guarantee Scheme

ELP Education Leadership Program

FRCH Foundation for Research in Community Health

IE Inclusive Education

GOI Government of India

HBCSE Homi Bhabha Centre for Science Education

HSTP Hoshangabad Science Teaching Programme of Eklavya

Janshala A primary education support programme initiated by the government with support from the Joint UN System

KSSP Kerala Sastra Sahitya Parishad

MACESE Maulana Azad Centre for Elementary arid Social Education

MAYA Movement for Alternatives and Youth Awareness

MCD Municipal Corporation of Delhi

MHRD Ministry of Human Resource Development, Government of India

MRP Master Resource Person

MVF M Venkatarangaiya Foundation

NIAS National Institute of Advanced Studies

NCERT National Council for Educational Research and Training

NCRI National Council of Rural Institutes

NDMC New Delhi Municipal Corporation

NFE Non Formal Education

NGO Non Governmental Organisation

NPE National Policy on Education

NRI Non Resident Indian

Panchayat Local self-government institution

PRASHIKA Prathmik Shiksha Karyakram, the primary education programme of Eklavya

PRISM Project in Science and Mathematics, a project of HBCSE

PSS Pragat Shikshan Sanstha

RIVER Rishi Valley Institute for Educational Resources (formerly RVREC)

RVREC Rishi Valley Rural Education Centre

SCERT State Council for Educational Research and Training

SECMOL Students' Educational and Cultural Movement of Ladakh

SeHAT School Health Action and Training

SHEP School Health Education Programme

SIA Seva-in-Action

SSA Sarva Siksha Abhiyan

SSTP Social Science Teaching Programme of Eklavya

ST Scheduled Tribe

SUPW Socially Useful Productive Work

Taluka An administrative unit below a district

TNSF Tamil Nadu Science Forum

TOT Training of Trainers

UEE Universalisation of Elementary Education

UNICEF United Nations International Children's Education Fund

USN Uttarakhand Seva Nidhi Paryavaran Shiksha Sansthan

VEC Village Education Committee

ZP Zilla Parishad

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1. Aga Khan Foundation. *National Seminar on School Reform Strategies.* New Delhi: European Commission and Hong Kong and Shanghai Banking Corporation Limited, 2000.

2. Aga Khan Foundation. *Proceedings, of Workshop on School Improvement.* New Delhi: Aga Khan Foundation, 1994.

3. Aga Khan Foundation. *Programme for Enrichment of School Level Education-Concept paper.* New Delhi: Aga Khan Foundation. 1997.

4. Aga Khan Foundation. *School Improvement in Andhra Pradesh.* New Delhi: Aga Khan Foundation. 1995.

5. Agnihotri RK, Khanna AL, Shukla Subir. *PRASHIKA.* Bhopal: Ratnasagar, 1994.

6. Alarippu. *NDMC school; Alarippu.* New Delhi: Alarippu, 1993.

7. Black Harry, Devine Marion, Govinda R, and Kiragu Florence. *School Improvement in the Developing World.* New Delhi: Aga Khan Foundation and Scottish Council for Research in Education, 1993.

8. Chavan Madhav. *Building Societal Missions for Universal Pre-school and Primary Education - The Pratham experience:* Paris: International Institute for Educational Planning. 2000.

9. CHETNA. *Children in charge for change.* Ahmedabad: Chetna, 1997.

10. **CIEE-DPEP Karnataka.** *Quality in Elementary Education - towards universalisation.* Bangalore: Citizens' Initiative on Elementary Education (CIEE Karnataka), 200(1.

11. Department of Education. *Bihar Shiksha Pariyojna.* Patna: Department of Education, Government of Bihar, 1990.

12. Department of Education. *Sitamadit Yojna,* Patna: Department of Education. Government of Bihar, 1992.

13. Department of Education. *Experimental and Innovative Projects in Elementary Education.* New Delhi: Ministry of Human Resource Development, 1994.

14. Department of Education. *Review and Documentation of the Jahangirpuri School Project.* Delhi: University of Delhi, 2002.

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16. **Deshpande Dr Mohan and Vaidya Vaishali.** *The School Health Education Project (SHEP) 1988-1992.* Bombay: The Foundation for Research in Community Health.

17. DPEP. *Child-friendly Elements for Rural Primary School - An engineer's handbook.* New Delhi: DPEP, 2000.

18. DPEP. *Reaching out Further-Para Teachers in Primary Education: An Overview.* New Delhi: DPEP. 1998.

19. **Govinda R and Diwan Rashmi.** *Community Participation and Empowrment in Primary Education.* New Delhi: Sage Publications. 2002.

20. Govinda R (Ed). *India Education Report- A Profile of Basic Education.* New Delhi: Oxford University Press, 2002,

21. Hegarty Seamus and Alur Mithu. *Education and Children with Special Needs.* New Delhi: Sage Publications, 2002.

22. Jackson Dr MG, Pande Dr GP and Pande Lalit. *Environmental Education in India: A critical assessment of developments to date and suggestions for the future.* Almora: Uttarakhand Environment Education Centre. 2000.

23. Jagannathan Shanti. *The Role of Non-governmental Organisations in primary education- A Study of six NGOs in India.* The World Bank, World Bank Institute, 2001.

24. Khullar Dr Mala and Kasturi Leela. *School Improvement in Andhra Pradesh.* New Dcllii: Aga Khan Foundation, 1995.

25. Kurrien John. *Elementary Education in India: Myth, Reality, Alternative.* Ghaziabad: Vikas Publication. 1983.

26. **Ladakh Autonomous Hill Development Council and SECMOL.** *Operation New Hope (ONH) - Genesis, Experiences and the Challenges Ahead* Ladakh: Save the Children, 2001.

27. Machhiwala Tasqeen. *Nali Kali – Learning with Joy.* Karnataka: Action Aid and CIEE. 1997.

28. Menon Shyam and Sandeep P. *School Improvement Programme in Andhra Pradesh.* New Delhi: Aga Khan Foundation. 1994.

29. Nawani Disha. *Role and Contribution of Non-Governmental Organisations in Basic Education in India.* New Delhi: NIEPA, 2000.

30. NCERT *Studies on Learning Organisation, Community Participation and School Effectiveness at Primary Stage.* New Delhi: National Council of Educational Research and Training, 1998.

31. **Rainchandran Vimala.** *Getting Children Back to School.* New Delhi: Sage Publications. 2003.

32. **Shottonjohn Robert.** *Learning and Freedom.* New Delhi: Sage Publications, 1998.

33. **The PROBE Team in association with Centre for Development Economics.** *Public Report on Basic Education in India (PROBE).* New Delhi: Oxford University Press, 1999.

34. **Vaidya Vaishali and Deshpande Dr Mohan.** *Health-Environment-Sanitation Education for Rural out-of-School Children.* Bombay: The Foundation for Research in Community Health, 1998.

35. Vajpeyi Kabir. *Use of school Built Environment as a teaching-learning Aid.* New Delhi: VINYAS, 2000.

36. Wazir Rekha. *M.V Foundation-Monograph 1.* Secunderabad: MV Foundation, 2002.

www.education.nic.in

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